

STUDIES IN THEACEAE. III

EURYA SUBGENERA EURYODES AND PENTEURYA

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The genus *Eurya* was first described by Thunberg¹ in 1783 with *E. japonica*, the type-species. By 1854, over forty species had been added to this genus by various workers. During this year, A. Gray² described three new species from the Pacific Islands and established a subgenus *Euryodes* for two of his species, *E. Pickeringii* and *E. Richii*. Pentandrous staminate flowers formed the basis for this segregation.

In 1893, Szyszyłowicz³ recognized three sections: *Cleyera*, *Freziera* and *Proteurya*. In his study he had enlarged the scope of the genus by including two other genera, *Cleyera* Thunberg and *Freziera* Swartz. Also he instituted the new section *Proteurya* under which he placed the subgenus *Euryodes* A. Gray.

Two years later (1895), Vesque,⁴ overlooking Szyszyłowicz' treatment, proposed four sections: *Eueurya*, *Euryodes*, *Gynandra* and *Meristotheca*. The last two mentioned were designated as new. *Proteurya* was included under *Eueurya*. To my knowledge this was the first time that the name *Eueurya* had been used as a divisional name for this genus. Vesque's key and sections were based on anatomical characters and proved impracticable; hence they have been little used.

In 1896, Urban⁵ established a new genus, *Ternstroemiopsis* with *Eurya sandwicensis* A. Gray as the type. At the same

¹ Thunberg, Nov. Gen. Pl. 68 (1783).

² A. Gray, Bot. U. S. Expl. Exped. 1838-1842, 1: 211 (1854).

³ Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 189 (1893).

⁴ Vesque in Bull. Soc. Bot. France, 42: 151 (1895).

⁵ Urban in Ber. Deutsch. Bot. Gesell. 14: 49 (1896).

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time he treated *Freziera*, *Cleyera* and *Eurya* as separate genera.

The following year (1897), Engler⁶ studied the genus *Eurya* and subdivided it into the following subgeneric heads: *Cleyera*, *Freziera*, *Proteurya* and *Ternstroemiopsis*. Again A. Gray's subgenus was included in *Proteurya*.

In 1935, the present author,⁷ in the first of a series of studies in the Theaceae, presented a synopsis of the subgenus *Ternstroemiopsis* and recognized one other subgenus, *Proteurya*. *Cleyera*⁸ and *Freziera* were excluded as distinct genera. Since that time, after studying the remaining species of *Eurya*, I feel that three subgenera should be recognized, namely, *Ternstroemiopsis*, *Euryodes* (*Proteurya*) and a new subgenus *Penteurya*. This study brought out the fact that the divisional name *Euryodes* (1854) antedates the name *Proteurya* (1893). Since the time of Vesque most workers have felt that Gray's basis of separation, that of pentandrous staminate flowers, was insufficient to separate it from *Proteurya*. Gray, having only staminate specimens, could not know that the pistillate specimens would agree with the other then-known species of *Eurya* by having three-parted styles and stigmas. In merging these two subdivisions under the same heading the name *Euryodes*, because of its priority, must be used since the International Rules stipulate that the first divisional name established must be accepted.

In working over the New Guinean material I was surprised to find species having both pentandrous stamens and five-parted styles and stigmas. As far as I know, with the exception of two, all New Guinean species belong to this new subgenus described below.

The fact that the genus is dioecious makes the presentation of a natural key very difficult. Instead, an artificial key has been prepared. Except in a very few instances, the species are confined to distinct geographical regions. Therefore, it has

⁶ Engler in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 1: 246 (1897).

⁷ Kobuski in Jour. Arnold Arb. 16: 347 (1935).

⁸ Kobuski in Jour. Arnold Arb. 18: 118 (1937).

been considered advisable to separate the genus into five geographical groups and prepare an individual key for each group.

To make this study possible borrowed material, photographs and fragments of types were obtained from many European and Oriental herbaria as well as American institutions. In a few instances reference is made to some of these institutions by abbreviations accompanying the citation of critical specimens. These are as follows: AA = Arnold Arboretum, BM = British Museum, FM = Field Museum, G = Gray Herbarium, NY = New York, SY = Sun Yatsen, V = Vienna. Professor Alfred Rehder, Curator of the Herbarium of the Arnold Arboretum, while visiting European herbaria diligently searched for many obscure types and specimens, photographed them and procured fragments when possible. His carefully prepared notes concerning the types have been most helpful. Dr. E. D. Merrill, Director of the Arnold Arboretum, has also displayed a keen interest and has offered constructive criticism in the development of this study. To all assisting in this work, I am deeply grateful.

This paper is affectionately dedicated to Dr. Jesse More Greenman, for years my professor, advisor and friend.

KEY TO THE SUBGENERA

- Folia spiraliter disposita; petala carnosae; antherae filamentis duplo longiores
1. *TERNSTROEMIOPSIS*¹
 Folia plus minusve disticha; petala plus minusve membranacea; antherae filamentis plerumque breviores.
 Stylus tri-partitus, interdum quadri-partitus; stamina 5, 10 vel 15...2. *EURYODES*
 Stylus quinque-partitus; stamina 5.....3. *PENTEURYA*, subgen. nov.

KEY TO THE SPECIES OF CHINA, INDO-CHINA, INDIA AND CEYLON

- A. Terminal leaf-buds and young branchlets glabrous.
 B. Leaves sessile; base auriculate with lobes clasping the stem.....1. *E. amplexifolia*
 BB. Leaves petiolate; base entire.
 C. Young branchlets terete.
 D. Leaves entire or nearly so.*
 E. Leaves tapering to an acuminate apex.....2. *E. Macartneyi*

* *E. Macartneyi* occasionally with some leaf serration.

¹ Kobuski in Jour. Arnold Arb. 16: 347(1935).

- EE. Leaves bluntly obtuse at the apex.....12a. *E. cuneata* var. *glabra*
- DD. Leaves sharply serrate.....2a. *E. Macartneyi* var. *hainanensis*
- CC. Young branchlets angled.
- F. Branchlets four-angled.
- G. Leaves up to 25 cm. long, 6 cm. wide; veins, 20 or more pair, deeply impressed on upper surface, highly raised (even to cross veins) on lower surface; style 5-6 mm. long.....3. *E. polyneura*
- GG. Leaves up to 10-11 cm. long, ca. 3 cm. wide; veins raised on upper surface, inconspicuous; style short (1 mm. long).....4. *E. tetragonoclada*
- FF. Branchlets two-angled.
- H. Leaves narrow, usually 0.5-0.8 cm. wide, occasionally up to 1 cm. wide; fruit oblong.....5. *E. stenophylla*
- HH. Leaves usually much wider (occasionally only 1.7 cm. wide in *E. Handeliana*); fruit globose.
- I. Veins on upper surface deeply impressed, as if etched.....6. *E. Handeliana*
- II. Veins on upper surface raised or inconspicuous, never impressed.
- J. Leaves tapering at both ends, oblong.....7. *E. nitida*
- JJ. Leaves rounded at base, obtusely acuminate, wider because of rounded base.....7a. *E. nitida* var. *aurescens*
- AA. Terminal leaf-buds and young branchlets pubescent.
- K. Ovary and fruit glabrous.
- L. Leaf-base oblique or lobed.
- M. Leaves 8-10 cm. long, membranaceous, long-attenuate at apex, margins flat, not revolute.....8. *E. obliquifolia*
- MM. Leaves 4-6 cm. long, coriaceous, apex blunt occasionally, shortly acuminate, margins revolute.....9. *E. glandulosa*
- LL. Leaf-base cuneate, occasionally somewhat rounded, never lobed or oblique.
- N. Leaves rounded at apex, emarginate, never acuminate.....10. *E. emarginata*
- NN. Leaves acuminate at apex.
- O. Margins entire, occasionally slightly undulate, never sharply serrate.....11. *E. cuneata*
- OO. Margins sharply serrate, never entire.
- P. Leaves (majority) small, less than 4 cm. long.
- Q. Leaves evenly elliptic-acuminate; veins deeply impressed on upper surface.....12. *E. Fangii*
- QQ. Leaves obovate, quite obtuse at apex, sometimes nearly rounded; veins upraised or nearly insignificant on upper surface.....13. *E. chinensis*
- PP. Leaves considerably longer, 6-12 cm. long.
- R. Leaves thick, coriaceous; margins revolute.....14. *E. ceylanica*
- RR. Leaves membranaceous or nearly membranaceous; * margins not revolute.

* In case of *E. symplocina*, the older leaves are occasionally quite coriaceous.

- S. Calyx pubescent; terminal leaf-bud and young branchlets pilose.
- T. Leaves narrowly lance-acuminate, usually three times as long as wide; veins not especially conspicuous on upper surface.....15. *E. acuminata*
- TT. Leaves wide-lanceolate, up to 4 cm. wide, veins conspicuously depressed on upper surface.....16. *E. cerasifolia*
- SS. Calyx glabrous; terminal leaf-bud and young branchlets minutely puberulent, sometimes appearing glabrous....
.....17. *E. Loquaiana*
- KK. Ovary and fruit pubescent.
- U. Leaves auriculate at base, clasping stem.....18. *E. disticha*
- UU. Leaves cuneate or rounded at base, not auriculate or clasping.
- V. Calyx glabrous.
- W. Fruit becoming glabrescent at maturity with only occasional hairs present; leaves delicately tapering at both ends; terminal bud finely puberulent, at times appearing almost glabrous.....19. *E. trichocarpa*
- WW. Fruit pubescent at maturity, leaves although tapering somewhat, nearly rounded at base; terminal bud pilose.....
.....21a. *E. distichophylla* var. *Henryi*
- VV. Calyx pubescent.
- X. Leaves huge, 10–14 cm. long, 5 cm. wide.....20. *E. velutina*
- XX. Leaves up to 10 cm. long, narrow-lanceolate, seldom over 2 cm. wide.
- Y. Calyx obtuse, with short pilose hairs; styles trifid.....
.....21. *E. distichophylla*
- YY. Calyx acuminate, densely covered with long yellow hairs; styles usually 4-fid.....22. *E. ciliata*

KEY TO THE SPECIES OF JAPAN, KOREA, FORMOSA AND
LIU KIU ISLANDS

- A. Pubescent ovary and fruit.
- B. Leaves narrow lanceolate, up to 14 cm. long; strigillose-pubescent on stems as well as fruit.....23. *E. strigillosa* (Formosa)
- BB. Leaves ovate-elliptic, up to 7 cm. long; stem glabrous or nearly so, not strigillose.....24. *E. gnaphalocarpa* (Formosa)
- AA. Glabrous ovary and fruit.
- C. Largest leaves less than 4 cm. long, usually 2–3 cm. or less.
- D. Leaves membranaceous, 2–3 cm. rarely 4 cm. long.....
.....25. *E. leptophylla* (Formosa)
- DD. Leaves coriaceous, minute, usually less than 1 cm. long, occasionally 2 cm. long.
- E. Leaves about as broad as long, less than 0.5 cm. either way, seemingly entire, deeply emarginate, obcordate.....
.....11a. *E. emarginata* var. *microphylla* (Japan)

- EE. Leaves longer than broad, although small, leaves always found up to 1.5–2.0 cm. long, serrate, never obcordate in shape.
- F. Leaves acute at apex, elliptic.....26. *E. crenatifolia* (Formosa)
- FF. Leaves obtuse at apex, obovate.....
.....31a. *E. japonica* var. *microphylla* (Japan)
- CC. Largest leaves up to 11–12 cm. long, all considerably longer than 4 cm.
- G. Entirely glabrous even to terminal bud.
- H. Branches winged, stem growth zigzag from node to node.
- I. Twenty stamens, filaments twice as long as anthers.....
.....27. *E. yaeyamensis* (Liu Kiu)
- II. Ten stamens, anthers twice as long as filaments.....
.....28. *E. zigzag* (Liu Kiu)
- HH. Branches perhaps slightly winged, zigzag growth absent.
- J. Leaves sharply toothed, evenly elliptic..29. *E. glaberrima* (Formosa)
- JJ. Leaves nearly entire or undulate-serrate, never sharply toothed.
- K. Leaves nearly entire, very slight serration.....
.....30. *E. Hayatai* (Formosa)
- KK. Leaves always undulate-serrate, usually more noticeable at apex.....31. *E. japonica* (Japan)
- GG. Pubescence found on stem as well as terminal buds.
- L. Leaves acuminate, attenuate at apex.
- M. Leaves 3.5 cm. wide, robust.....32. *E. renegechiensis* (Formosa)
- MM. Leaves less than 2 cm. wide at broadest part.....15. *E. acuminata*
- LL. Leaves obtuse at apex.
- N. Leaves heavy-coriaceous, perfectly obovate, rounded at apex, never acuminate, distinctly emarginate, slightly serrate.....
.....10. *E. emarginata*
- NN. Leaves coriaceous, sometimes obovate, always acuminate, usually not emarginate, distinctly serrate.....13. *E. chinensis*

KEY TO THE SPECIES OF THE PHILIPPINE ISLANDS

- A. Leaves auriculate (heart-shaped) at base, sessile, clasping the stem.....
.....33. *E. amplexicaulis*
- AA. Leaves cuneate at base, petioled.
- B. Terminal buds pubescent.
- C. Pubescent ovary and young fruit.
- D. Leaves ovate-elliptic, acute apex not attenuate; fruit pubescent at maturity.....24. *E. gnaphalocarpa*
- DD. Leaves long attenuate; fruit glabrescent at maturity..19. *E. trichocarpa*
- CC. Glabrous ovary and fruit.
- E. Leaves very short-petiolate, nearly sessile; branches terete.....
.....34. *E. buxifolia*
- EE. Leaves petioled 2–3 mm. long; young branches angled.....35. *E. flava*
- BB. Terminal buds glabrous.
- F. Styles partially connate, 2–2.5 mm. long.....7. *E. nitida*
- FF. Styles free to base, very short, 1 mm. or less.....36. *E. coriacea*

KEY TO THE SPECIES OF THE DUTCH EAST INDIES, SAMOA AND FIJI ISLANDS

- A. Staminate flowers pentandrous.
 - B. Entirely glabrous.....37. *E. Pickeringii*
 - BB. Pubescent terminal buds and young branchlets.....38. *E. Richii*
- AA. Staminate flowers decandrous or polyandrous.
 - C. Ovary and young fruit pubescent.....19. *E. trichocarpa*
 - CC. Ovary and young fruit glabrous.
 - D. Terminal buds and branchlets pubescent.
 - E. Leaf serration rounded-undulate (Fiji).....39. *E. vitiensis*
 - EE. Leaf serration sharp (Dutch E. Indies).....15. *E. acuminata*
 - DD. Terminal buds and branchlets glabrous.
 - F. Young branchlets terete.....40. *E. glabra*
 - FF. Young branchlets angled.
 - G. Flower buds and fruit conical in shape.....41. *E. coneocarpa*
 - GG. Flower buds and fruit globose, not conical.
 - H. Persistent style 2-3 mm. long, connate nearly its whole length
.....7. *E. nitida*
 - HH. Persistent style hardly 1 mm. long, free nearly to base.
 - I. Leaves obtuse at apex, bluntly acuminate.....42. *E. obovata*
 - II. Leaves oblong-elliptic, tapering-acuminate, not obtuse at apex
.....42a. *E. obovata* var. *sinaboengensis*

KEY TO THE SPECIES OF NEW GUINEA

- A. Style and stigma three-parted. [Subgenus EURYODES.]
 - B. Branches glabrous; leaves 10-15 cm. long, 4-5 cm. wide....43. *E. Roemeri*
 - BB. Branches clothed with dense fulvous, appressed pilose pubescence; leaves
2-3 cm. long, 0.7-1.0 cm. wide.....44. *E. Greenmaniana*
- AA. Style and stigma five-parted. [Subgenus PENTEURYA.]
 - C. Leaves obtuse at apex, not acuminate.
 - D. Leaves 3 cm. or less long.
 - E. Branchlets sparingly pubescent; leaves cuneate or subrotund at
base, not cordate.....45. *E. Hellwigii*
 - EE. Branchlets densely pilose or tomentose; leaves cordate..46. *E. albiflora*
 - DD. Leaves approximately 6 cm. long.....47. *E. Merrilliana*
 - CC. Leaves acuminate at apex.
 - F. Leaves membranaceous, not coriaceous; pilose, at least when young.
 - G. Leaves rounded at base.....48. *E. tigang*
 - GG. Leaves cuneate at base.
 - H. Leaves 10-13 cm. long.....49. *E. meizophylla*
 - HH. Leaves 4-5 cm. long.....50. *E. leptantha*
 - FF. Leaves coriaceous; glabrous (except in case of *E. phyllopoda*).
 - I. Leaves serrate at acuminate apex only.....51. *E. Rehderiana*
 - II. Leaves serrate along complete margin.
 - J. Terminal buds glabrous.....52. *E. oxysepala*
 - JJ. Terminal buds closely silky-strigose.....53. *E. phyllopoda*

Subgenus EURYODES

Eurya subgenus **Euryodes** A. Gray, Bot. U. S. Explor. Exped. 1838-1842, 1: 211(1854).

Eurya section *Proteurya* Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893).

Eurya section *Eueurya* Vesque in Bull. Soc. Bot. France, 42: 151(1895).

Eurya subgenus *Proteurya* (Szyszyłowicz) Engler in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 1: 247(1897).

1. **Eurya amplexifolia** Dunn in Kew Bull. Misc. Inform. Add. Ser. 10: 44 (Fl. Kwangtung) (1912).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

DISTRIBUTION: China (Kwangtung).

CHINA. KWANGTUNG: on slope along road, *N. K. Chun* 42586, Apr. 5-May 1, 1931; *F. A. McClure* 415; *J. L. Gressitt* 1745; *W. T. Tsang* 21037, 21116, 21218, 21660.

This species is characterized by its large (16 cm. × 5 cm.) amplexicaul leaves. The two auriculate basal lobes extend as much as 1.0-1.5 cm. beyond and often overlap the other side of the stem. The younger branchlets are two-winged, glabrous even to the terminal bud. The fruit is oblong-ovate (7 mm. × 4 mm.) with a short style (less than 1 mm.) which is connate most its length.

2. **Eurya Macartneyi** Champion in Proc. Linn. Soc. London, 2: 99(1850).—Bentham in Hooker's Jour. Bot. Kew Misc. 2: 307(1851).—Mueller in Walpers, Ann. Bot. Syst. 4: 347(1857).—Seemann, Bot. Voy. Herald, 366, t. 74(1857).—Bentham, Fl. Hongkong. 28(1861).—Champion in Trans. Linn. Soc. London, 21: 113(1873).—Hemsley in Jour. Linn. Soc. Bot. 23: 77(1886).—Dunn & Tutcher in Kew Bull. Misc. Inform. Add. Ser. 10: 43 (Fl. Kwangtung & Hongkong) (1912).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

DISTRIBUTION: China (Kwangtung, Hainan, Kwangsi).

CHINA. KWANGTUNG: *Lord G. Macartney*, s.n. (type in BM; photo. and fragment, AA); *C. Ford* s.n.; *C. Wright* s.n.; *C. S. Sargent* s.n.; *C. Wilford* s.n.; *H. Fenzl* 31; *H. Green* 1183; *Y. Tsiang* 1282; *W. T. Tsang* 16677, 20090; *W. Y. Chun* 5813, 5920, 5935, 7546; *L. Gibbs* 7428; *S. K. Lau* 2732, 24090, 24740, 24944; *C. L.*

Tso 20174, 20325, 20904, 22686; *Z. S. Chung* 11097; *L. Yiu* 10603; *D. H. King* 9856; *C. Wang & H. Y. Liang* 31272, 31279; *C. Wang* 31643; *N. K. Chun* 40890, 41392, 41782, 41786, 41907, 42032, 42037; *H. Y. Liang* 60501, 61018, 61241, 61242; *S. P. Kwok* 80043, 80064.—HAINAN: *H. Y. Liang* 63300, 63740, 63841.—KWANGSI: *R. C. Ching* 8008, 8242; *W. T. Tsang* 22737.

In most species of *Eurya*, one finds winged branchlets accompanying strictly glabrous terminal buds. *Eurya Macartneyi* is one of the few exceptions to this group, having terete branchlets with glabrous terminal buds. The branchlets are sturdy, as are the leaves, petioles and flower buds. The large leaves have pronounced veining on the upper surface, revolute margins and slight serration if any. The fruit is globose while the attached style is approximately 1 mm. long and free its entire length.

2a. ***Eurya Macartneyi* Champion var. *hainanensis*, var. nov.**
A typo recedit foliis latioribus, acutius serratis, acuminatis.

DISTRIBUTION: China (Hainan).

CHINA. HAINAN: in forest, Mo San Ling, alt. 900 m., *N. K. Chun & C. L. Tso* 44361 (type, AA), Nov. 24, 1932 (tree 6 m. with gray bark; leaves coriaceous, deep green, glabrous; fruit purple); *N. K. Chun & C. L. Tso* 44300; *F. C. How* 72119, 72156, 72628, 73496, 73575; *H. Y. Liang* 64341, 64698, 64700; *C. Wang* 34610, 35094, 35537, 36022, 36091, 36247.

This variety can be distinguished from the species by its wider, acuminate and sharply serrate leaves which, although coriaceous, are not as thick as those of the species.

3. ***Eurya polyneura* Chun in Sunyatsenia, 2: 55, pl. 16 (1934); in Hu & Chun, Icon Pl. Sin. 5: 7, pl. 207 (1937).**

DISTRIBUTION: China (Kwangtung).

CHINA. KWANGTUNG: side of ravine, Taimo Shan, Sunyi Terr., *S. P. Ko* 51272 (isotype, AA), Nov. 4, 1931 (shrub 4 m. tall; leaves deep green above, pale green below); *C. Wang* 31040, 37884, 38016, 31980.

As the name signifies, the outstanding character of this species is the veining. The leaves are large, oblong-lanceolate, 15–25 cm. long, 4–6 cm. wide. The principal lateral veins, impressed on the upper surface, are strongly elevated on the lower surface. There are 25 or more to each side of the midrib and,

being joined nearly at right angles to the midrib, present a scalariform appearance. These veins anastomose near the margin. Besides this character, the branches are stout, angular and ridged; the fruit is oblong-ovoid, 11 mm. long, 5 mm. wide, glabrous. The persistent style is about 5 mm. long and connate for most its length. The ♂ flowers have not been seen.

4. **Eurya tetragonoclada** Merrill & Chun in Sunyatsenia, 1: 71(1930).—Chun in Hu & Chun, Icon. Pl. Sin. 5: 8, pl. 208(1937).

DISTRIBUTION: China (Kwangtung).

CHINA. KWANGTUNG: in woods, Kow Fung, Lok Chong District, C. L. Tso 20683 (isotype, AA), May 20, 1929; H. Y. Liang 61265; S. P. Ko 51150.

Because of its sharply 4-angled branchlets this species is immediately associated with *E. polyneura* which is distinctive for the same character. They can be easily separated by the style and leaf venation. This species has a comparatively short, stout style (1 mm.) while *E. polyneura* has a style of 5–6 mm. Also the leaf-veining in *E. tetragonoclada* is rather inconspicuous while in *E. polyneura* there are more than twenty pair. These, in turn, are sharply raised on the lower leaf-surface.

5. **Eurya stenophylla** Merrill in Philipp. Jour. Sci. 21: 502(1922); in Univ. Calif. Publ. Bot. 13: 136(1926).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

DISTRIBUTION: China (Kwangtung, Kwangsi), Indo-China, India (Burma).

CHINA. KWANGTUNG: Tung Sing, K. K. Ts'oong 1940 (type, NY), June 28, 1918.—KWANGSI: W. T. Tsang 22373, 22668, 22757; R. C. Ching 6138, 7835, 8071; A. N. Steward & H. C. Cheo 977.

INDO-CHINA: A. Petelot 1802, 3948.

INDIA: F. K. Ward 9087.

This is one of the strictly glabrous species, glabrous even to the terminal bud. As in the majority of these glabrous species, the branchlets are narrowly winged. The fruit is oblong-ovoid (7–8 mm. × 4.0 mm) rather than globose. The pedicel on the fruit is comparatively long as is the persistent style (up to 5 mm.). The leaves are narrow, sometimes only 0.5 cm. wide, while 4 cm. long.

6. *Eurya Handeliana*, spec. nov.

Eurya aurescens sensu Handel-Mazzetti, Symb. Sin. 7: 400(1931), quoad descript. excl. syn.; non *Eurya japonica* Thunberg var. *aurescens* Rehder & Wilson.

Frutex glaber 1.0–2.5 m. altus, ramis verruculosus; foliis coriaceis oblongo-ellipticis vel obovatis 3.5–6.0 cm. longis et 1.0–2.2 cm. latis obtuse acuminatis emarginatis basi cuneatis supra viridibus subtus luteo-viridibus margine serratis revolutis, venis supra profunde impressis reticulatis, petiolo 2 mm. longo; floribus axillaribus singularibus vel binis; florum ♂ pedicellis 2 mm. longis, bracteis 2 obovatis parvis, sepalis 5 imbricatis viridibus obovatis 2 mm. longis et 1.5 mm. latis, petalis 5 obovatis 3.5–4.0 mm. longis et 2.5–3.0 mm. latis, staminibus 5, filamentis 2 mm. longis, antheris 1 mm. longis, ovariis rudimentariis; florum ♀ pedicellis 1.5–2.0 mm. longis, bracteis 2 minutis obtusis, sepalis 5 obovatis 2.5–3.0 mm. longis et 1.8–2.0 mm. latis, ovariis globosis 1.0–1.5 mm. latis, stylis 3 ad basin liberis; fructibus globosis 3.5 mm. latis.

DISTRIBUTION: China (Yunnan), India (Burma).

CHINA. YUNNAN: exact locality and date lacking, *G. Forrest* 15692 (type, AA); *G. Forrest* 8922, 8940, 11944, 17519, 21537; *Y. Tsiang* 13157; *H. Handel-Mazzetti* 8724; *C. Schneider* 2488, 2798; *J. F. Rock* 3157, 8066.

BURMA: *J. F. Rock* 7406.

Handel-Mazzetti, in working over material of Yunnan, encountered material from this species (*E. Handeliana*) and, interpreting it as *E. japonica* var. *aurescens* Rehder & Wilson, thought it sufficiently distinctive to be worthy of specific rank and called it *E. aurescens* (R. & W.) Handel-Mazzetti.

In the present paper, *E. japonica* var. *aurescens* is found to be more closely allied to *E. nitida* Korthals than to *E. japonica* Thunberg and has been transferred to *E. nitida* as *E. nitida* var. *aurescens* (R. & W.). According to the "International Rules" the name "*aurescens*" must be retained for material of the Rehder & Wilson concept and a new name must be given to this species. No name could be more fitting than that of Handel-Mazzetti himself, a renowned worker on Chinese botany, and it is a great pleasure to dedicate this species to him.

The truly remarkable feature of this species is the pronounced veining on the upper surface of the leaf. The veins, all, even including the small cross-veins, are deeply impressed giving the effect of etching. Students other than Handel-Mazzetti have been misled by the light yellow under-surface of the leaf and have interpreted the material as belonging to the present *E. nitida* var. *aurescens*. The calyx lobes in both the male and female flowers are bluish-green, at least in the herbarium specimens. Also the stamen number is five, while the style is three-parted.

7. ***Eurya nitida*** Korthals in Temminck, Verh. Nat. Gesch. Bot. **3**: 115, t. 17 (1840).—Walpers, Repert. Bot. Syst. **1**: 369(1842).—Choisy in Zollinger, Syst. Verz. Ind. Archip. 147(1854).—Blume, Mus. Bot. Lugd.-Bat. **2**: 111(1856).—Miquel, Fl. Nederl. Ind. **1**²: 472(1859); in Ann. Mus. Bot. Lugd.-Bat. **4**: 105(1868-69).—Merrill in Jour. Str. Br. Roy. As. Soc. (Spec. No.) 391(1921).—Handel-Mazzetti, Symb. Sin. **7**¹: 399(1931).—Chun in Sunyatsenia, **2**: 59(1934).—Rehder in Jour. Arnold Arb. **15**: 99(1934).

Eurya Roxburghii Wallich, Num. List, No. 1465 (1828), pro parte.—Blume, Mus. Bot. Lugd.-Bat. **2**: 113(1856).—Mueller in Walpers, Ann. Bot. Syst. **4**: 344(1857).

Eurya Wightiana Wallich, Num. List, No. 3662 (1829), *nomen nudum*.

Eurya fasciculata Wallich, Num. List, No. 4399 (1830), *nomen nudum*.—Vesque in Bull. Soc. Bot. France, **42**: 153(1895).

Eurya Zollingeri Choisy in Zollinger, Syst. Verz. Ind. Archip. 143, 147 (1854).—Mueller in Walpers, Ann. Bot. Syst. **4**: 347(1857).—Miquel, Fl. Nederl. Ind. **1**²: 471(1859).—Koorders & Valeton, Bijdr. Boomsoorten Java, **3**: 248(1896).

Eurya anceps Blume, Mus. Bot. Lugd.-Bat. **2**: 111(1856).—Mueller in Walpers, Ann. Bot. Syst. **4**: 344(1857).—Miquel, Fl. Nederl. Ind. **1**²: 472(1859).

Eurya myrtifolia Blume, Mus. Bot. Lugd.-Bat. **2**: 113(1856).—Mueller in Walpers, Ann. Bot. Syst. **4**: 344(1857).—Miquel, Fl. Nederl. Ind. **1**²: 473(1859).—Vesque in Bull. Soc. Bot. France, **42**: 156(1895).

Eurya myrtifolia Blume var. *polymorpha* Blume, Mus. Bot. Lugd.-Bat. **2**: 113(1856).

Eurya Hasseltii Blume, Mus. Bot. Lugd.-Bat. **2**: 112(1856).—Mueller in Walpers, Ann. Bot. Syst. **4**: 344(1857).—Miquel, Fl. Nederl. Ind. **1**²: 473(1859).—Koorders & Valeton, Bijdr. Boomsoorten Java, **3**: 244(1896).

Eurya virens Blume, Mus. Bot. Lugd.-Bat. **2**: 112(1856).—Mueller in Walpers, Ann. Bot. Syst. **4**: 344(1857).—Miquel, Fl. Nederl. Ind. **1**²: 473(1859); Sumatra, 477(1862).

Eurya virens Blume var. β . *elliptica* Miquel, Sumatra, 477(1862).

Eurya japonica Thunberg var. α . *Thunbergii* Thwaites, Enum. Pl. Zeyl. **41**(1864).

Eurya japonica Thunberg var. *nitida* Thiselton-Dyer in Hooker f., Fl. Brit. Ind. **1**: 284(1874).—Pierre, Fl. For. Cochinch. **2**: t. 126(1887).—Koorders & Valetton, Bijdr. Boomsoorten Java, **3**: 235(1896).—Pitard in Lecomte, Fl. Gén. Indo-Chine, **1**: 338(1910).—Rehder & Wilson in Sargent, Pl. Wilson. **2**: 398(1915).—Diels in Bot. Jahrb. **56**: 526(1921).—Rehder & Wilson in Jour. Arnold Arb. **8**: 177(1927).—Kanehira in Bot. Mag. Tokyo, **45**: 329(1931).

Eurya systyla Miquel ex Thiselton-Dyer in Hooker f., Fl. Brit. Ind. **1**: 284(1874), pro synonym.

Eurya myrtifolia Blume var. α . *anceps* (Blume) Vesque in Bull. Soc. Bot. France, **42**: 156(1895).

Eurya myrtifolia Blume var. γ . *virens* (Blume) Vesque in Bull. Soc. Bot. France **42**: 157(1895).

Eurya myrtifolia Blume var. δ . *Hasseltii* (Blume) Vesque in Bull. Soc. Bot. France, **42**: 157(1895).

Rapanea aurea Lévêillé in Fedde, Rep. Spec. Nov. **10**: 376(1912); Fl. Kouy-Tchéou, 288(1914).

Eurya ladronica Hosakawa in Jour. Soc. Trop. Agric. **6**: 667(1934), *nomen nudum*; in Trans. Nat. Hist. Soc. Formosa, **25**: 30(1935).—Kanehira in Jour. Dept. Agric. Kyushu Imper. Univ. **4**: 370 (Enum. Micronesian Pl.) (1935).

Eurya palauensis Hosakawa in Trans. Nat. Hist. Soc. Formosa, **25**: 31(1935).—Kanehira in Jour. Dept. Agric. Kyushu Imper. Univ. **4**: 370 (Enum. Micronesian Pl.) (1935).

Eurya ponapensis Hosakawa in Trans. Nat. Hist. Soc. Formosa, **25**: 32(1935).—Kanehira in Jour. Dept. Agric. Kyushu Imper. Univ. **4**: 370 (Enum. Micronesian Pl.) (1935).

DISTRIBUTION: Dutch East Indies (Java, Sumatra, Borneo), Caroline and Marianne Islands, Philippine Islands (Palawan, Mindoro), Indo-China, India, China (Kwangtung, Hainan, Anhwei, Chekiang, Fukien, Hupeh, Kiangsu, Kwangsi, Kweichow, Szechuan, Yunnan).

BORNEO: locality and collector lacking (isotype of *E. nitida*, G, NY); *native collector* 138, 870, 1878, 2685; *J. & M. S. Clemens* 20526, 20658, 20902; *H. Hallier* B764.

JAVA: localities and collectors lacking (photos. and fragments of types of *E. Hasseltii*, *E. myrtifolia* and *E. anceps*, AA; isotypes of *E. anceps*, G, NY); *H. Zollinger* 2119 (isotype of *E. Zollingeri*, FM).

SUMATRA: prope Pandan-dulu-enim, Prov. Palembang, *J. E. Teysmann* (isotype of *E. virens*, G); Bangka, *J. E. Teysmann* (isotype of *E. virens* var. *elliptica*, G); *H. O. Forbes* 3116.

PHILIPPINE ISLANDS. MINDORO: *M. L. Merritt*, *For. Bur.* 6768; *M. Ramos*, *Bur. Sci.* 39637.—PALAWAN: *G. Edano*, *Bur. Sci.* 77451.

CAROLINE and MARIANNE ISLANDS: *R. Kanehira* 640, 702, 804, 1195, 1514, 1954, 2071, 2190.

INDO-CHINA: *J. & M. S. Clemens* 4218; *A. Petelot* 1545; *J. Harmand* 831.

INDIA: *J. D. Hooker & T. Thomson* s.n.; *E. Johnson* s.n.; *Hocks* s.n.; *E. H. Wilson* s.n.; *L. L. Uhl* s.n.; *D. Prain* 16; *H. Tireman* 21; *W. Bembower* 42, 77; *W. Griffith* 734, 735; *D. Brandis* 823; *N. Wallich* 4399 (isotype of *E. fasciculata*, NY); *F. K. Ward* 9060; *U. Kanjilal* 4655; *A. Saulière* 55.

CHINA. KWANGTUNG: *L. Tang* 8359; *Y. F. Kiang* 9255; *N. K. Chun* 42826, 43039; *W. Y. Chun* 5130, 5290, 5853, 5898, 6093, 6837, 6838, 6844; *H. Handel-Mazzetti* 377; *H. T. Ho* 60176; *S. P. Ko* 50390, 52925, 53550, 54622, 54749; *Y. Tsiang* 173, 2340, 2638; *S. P. Kwok* 80065; *S. K. Lau* 2433, 2715, 25170; *H. Y. Liang* 61244, 61359; *C. Wang & H. Y. Liang* 31663, 31716; *W. T. Tsang* 16604, 20905; *C. L. Tso* 20772, 21622, 21759; *C. Wang* 30278, 30318, 32446, 37800, 38143; *C. Wright* s.n.; *C. S. Sargent* s.n.; *C. Ford* s.n.—HAINAN: *N. K. Chun & C. L. Tso* 43422, 43606, 43716; *H. Fung* 20129; *F. C. How* 71672, 73276; *S. P. Ko* 52186; *S. K. Lau* 1532, 2903, 3591; *C. I. Lei* 293, 398, 816; *H. Y. Liang* 61512, 62104, 64085, 64094, 64242, 64309, 64699, 64961, 63218, 63394, 65112, 66466, 66468; *W. T. Tsang* 60, 275, 276, 637, 23667; *C. Wang* 32885, 33206, 33503, 35715, 36289.—CHEKIANG: *A. N. Steward* 2435; *T. N. Liou* 7449; *T. Tang* 148; *R. C. Ching* 1333, 1649, 2024, 4836, 4916, 5176; *M. Chen* 627, 890; *C. Y. Chiao* 14214, 14368, 14433, 14516, 14523, 14575, 14676, 18840; *H. H. Hu* 251, 775, 1661; *Y. L. Keng* 137, 148, 171, 282, 566, 655, 744, 1055, 1098.—ANHWEI: *N. K. Ip* 4771; *R. C. Ching* 2694, 2908, 3016; *M. Chen* 1078; *S. C. Sun* 1207.—KIANGSI: *H. H. Hu* 2391; *Y. Tsiang* 10600, in part; *W. Y. Chun* 4304; *E. H. Wilson* 1572, 1579; *A. N. Steward & H. C. Cheo* 504.—KIANGSU: *R. C. Ching & C. L. Tso* 404, 431; *W. Y. Chun* 2604.—HUNAN: *H. Handel-Mazzetti* 467, 483, 11413.—HUPEH: *H. C. Chow* 754, 1751; *E. H. Wilson* (Veitch) 1751, 3544; *A. Henry* 1907, 2344, 3687, 7946; *W. Y. Chun* 3710; *H. C. Cheo & C. Y. Chiao* 18178.—KWANGSI: *A. N. Steward & H. C. Cheo* 822, 863; *R. C. Ching* 5931; *W. T. Tsang* 22004; *H. Y. Liang* 67442; *S. K. Lee* 81067.—KWEICHOW: *H. Handel-Mazzetti* 145; *S. W. Teng* 684; *Y. Tsiang* 4181, 7721, 7521, 8598.—FUKIEN: *H. H. Chung* 2205, 2665, 3725, 4026, 6415; *J. B. Norton* 1576.—YUNNAN: *E. E. Maire* 113, 214, 2465; *J. F. Rock* 7548, 7867; *G. Forrest* 7573, 7598, 8021, 14829; *Y. Tsiang* 13077; *H. Handel-Mazzetti* 5708; *H. T. Tsai* 55756, 57130.—SZECHUAN: *A. Henry* 7099; *C. Y. Hwang* 171; *W. P. Fang* 504, 672, 2035, 2074, 2308, 2334, 2337, 5727; *S. F. Chang* 952; *Y. Chen* 5730; *F. T. Wang* 20576, 22492.

This species, which was first described by Korthals from material grown in Sumatra, has a larger geographical range than most species in the genus. Found originally in the Dutch East Indies it extends north to the Philippine Islands and west into China where it is found in the majority of the southern and eastern provinces.

There is a variation to be found, naturally, in a species with such an extensive range. The Chinese material has heavier thicker leaves than the material found in the Dutch East Indies.

However, the variation is not sufficient to warrant specific or varietal delimitation.

Though often confused with *E. japonica* because both species are strictly glabrous, they can be separated easily by their geographical distributions. The range of *E. japonica* is limited to Japan only, while *E. nitida*, a widespread species, is never found there. Also *E. japonica* has an undulating, soft serration while the serration in *E. nitida* is sharp and close.

Eurya virens Blume, *E. myrtifolia* Blume, *E. Hasseltii* Blume and *E. anceps* Blume were reduced to synonymy under *E. nitida* by Miquel. The only one of the four that could be questioned is *E. anceps*. The leaves in this Javan representative are perhaps a little wider than typical *E. nitida*, hence taper a trifle more abruptly at the apex. However, I agree with Miquel and feel that this variation is hardly worthy of consideration.

Of *E. Zollingeri*, only a good-sized fragment of the type was available. This was found in the Field Museum of Natural History. It resembles *E. nitida* in all visible characters. However, no flowers or fruit were to be had. Choisy, in referring to the style, says "Stylus unicus apice 3-partitus." One naturally assumes that the style is elongated. In such a case the species would naturally fall into the synonymy of *E. nitida*.

Eurya ladronica, *E. palauensis* and *E. ponapensis*, all described by Hosakawa in 1935 from the Marianne and Caroline Islands, belong under this species. Kanehira in his enumeration of the Micronesian flora intimates in a footnote that after comparing a large number of specimens collected in the same regions as Hosakawa's species, he could find no striking differential characters. He merely mentions the proposed new species pending a more intensive study. I also have material (Kanehira's) from these localities, and although none are mentioned by Hosakawa in his study they are undoubtedly the same species.

True *E. nitida* is found in the Philippines on the islands of Palawan and Mindoro. Also a single specimen from the province Caramines Sur on the island of Luzon. However, the

majority of material from Luzon varies from the true *E. nitida* in having rather short styles free to the base. The majority of specimens are those with mature fruit in which the styles may have been broken off partly or entirely. These specimens may be worthy of specific delimitation but the consistent variation seems to be found in the style only and, as has been mentioned before, considerable variation in the style may be found on a single plant.

7a. ***Eurya nitida* Korthals var. *aurescens* (Rehder & Wilson), comb. nov.**

Eurya japonica Thunberg var. *aurescens* Rehder & Wilson in Sargent, Pl. Wilson. 2: 399 (1915).

Eurya aurescens (Rehder & Wilson) Handel-Mazzetti, Symb. Sin. 7¹: 400 (1931), quoad syn., excl. descript.

DISTRIBUTION: China (Hupeh, Kiangsu, Chekiang, Fukien, Kweichow, Szechuan, Kwangsi), Indo-China.

CHINA. HUPEH: woods, Changyang Hsien, alt. 600–1300 m., *E. H. Wilson* 3545 (type, AA), April and September 1907 (shrub 2–6 m. tall; flowers white or pink; fruit black); *E. H. Wilson* 22; *H. C. Chow* 1253, 1943, 1961; *W. Y. Chun* 3992, 4148; *A. Henry* 3673, 5147, 5162, 5170, 6693, 7830; *H. C. Cheo* 184.—KIANGSU: *Y. Tsiang* 9939, 10046, 10600 (in part); *H. H. Chung & S. C. Sun* 502; *C. Y. Cheo* 18801; *T. N. Hsiung* 472.—CHEKIANG: *C. Y. Chiao* 14613.—FUKIEN: native collector for *H. H. Chung* 4001.—KWEICHOW: *Y. Tsiang* 6769, 7003.—SZECHUAN: *W. P. Fang* 2307, 2413, 3809, 5703, 5808, 7603, 7755; *C. Bock & A. von Rosthorn* 2165; *A. Henry* 5616.—KWANGSI: *W. T. Tsang* 21865.

INDO-CHINA: *J. & M. S. Clemens* 3451, 3927.

This variety, very closely related to *E. nitida*, can be separated by its larger, generally thicker, coriaceous leaves, rounded at the base and abruptly short-acuminate at the apex. Usually the under-surface of the leaf is bright yellow. This last character does not always hold and may be found at times characteristic of individual specimens of *E. nitida* itself.

When originally described by Rehder and Wilson as *E. japonica* var. *aurescens*, their concept of *E. nitida* was that of a second variety of *E. japonica*. These authors noted the relationship between the two varieties and at that time seemed to be among the few botanists who actually felt that *E. japonica* was not native to China.

Handel-Mazzetti raised this variety to specific rank under the name *E. aurescens*. Unfortunately, Handel-Mazzetti was not working with representative material of this variety but with that of a new species (*E. Handeliana*) described in the present study.

8. ***Eurya obliquifolia*** Hemsley in Hooker's Icon. 28: t. 2761 (1903).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

DISTRIBUTION: China (Yunnan).

CHINA. YUNNAN: mountain forests, southwest of Mengtze, alt. 1525 m., *A. Henry* 10914, 10914A, 10914B (in part), (isotypes, AA, NY) (tree 10 m.); *Y. Tsiang* 13078.

This species is closely allied to *E. glandulosa*. It can be separated, however, by its larger leaves (up to 10 cm.) which are membranaceous rather than coriaceous and attenuate-acuminate at the apex. The leaves of *E. glandulosa* are decidedly revolute and from the upper surface appear entire. The leaf margins of *E. obliquifolia* are not revolute and are decidedly serrate.

9. ***Eurya glandulosa*** Merrill in Philipp. Jour. Sci. Bot. 12: 107(1917).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

Eurya Weissiae Chun in Jour. Arnold Arb. 9: 128(1928).—Syn. nov.

DISTRIBUTION: China (Kwangtung, Kwangsi, Kweichow, Yunnan).

CHINA. KWANGTUNG: in damp, shaded ravines, alt. 1000 m., *E. D. Merrill* 10379 (type, NY, photo. AA), Oct. 28, 1916; North River region, *W. Y. Chun* 5791, 5791a (types of *E. Weissiae*), Dec. 1927 (AA, SY).—KWANGSI: *R. C. Ching* 5942.—KWEICHOW: *Y. Tsiang* 6258, 6259.—YUNNAN: *H. T. Tsai* 51739; *Y. Tsiang* 13344.

Unfortunately the specimen from which Merrill drew up his original description for this species was older and generally less pronounced in character than the material used by Chun in his description of *E. Weissiae*. The variations between the two are those of degree rather than true morphological differences. On careful study of a series of specimens these differences vanish.

This species is characterized by terete stems, auriculate, coriaceous leaves (4–6 cm long, 1.5–3 cm. wide) with pronounced reticulate veining on the lower surface. These veins are impressed above. The young stems, terminal leaf-buds and calyx lobes are hirsute. The style is approximately 1 mm. long and connate for most its length.

It is closely related to *E. disticha* from which it can easily be separated by its coriaceous leaves, pronounced reticulate veining, leaf width and short style. A second related species is *E. obliquifolia* (Yunnan) which differs from *E. glandulosa* in its larger (up to 10 cm.) leaves, which are membranaceous rather than coriaceous, attenuate-acuminate at the apex, with serrated margins which are not revolute.

10. **Eurya emarginata** (Thunberg) Makino in Bot. Mag. Tokyo, **18**: 19(1904), excl. syn. *Eurya chinensis*.—Rehder & Wilson in Sargent, Pl. Wilson. **2**: 400(1915).—Mori, Enum. Korean Pl. 251(1922).—Makino & Nemoto, Fl. Jap. 552(1925).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, **21**: 148(1925).—Nakai, Fl. Sylv. Kor. **17**: 81(1928).

Ilex emarginata Thunberg, Fl. Jap. 78(1784); in Murray, Syst. Veg. ed. 14, 168(1784).—Vitman, Summa Pl. 1: 342(1789).—Willdenow, Sp. Pl. 1: 170(1798).—Persoon, Syn. Pl. 1: 151(1805).—Poiret, Suppl. Encycl. 3: 66(1813).—Roemer & Shultes, Syst. Veg. 3: 491(1818).—A. P. de Candolle, Prodr. 2: 16(1825).—G. Don, Gen. Hist. 2: 19(1832).—Miquel, Cat. Mus. Bot. Lugd.-Bat. 19(1870).

Eurya littoralis Siebold apud Siebold & Zuccarini in Abh. Akad. Münch. **4**²: 163 (Fl. Jap. Fam. Nat. 1: 55)(1845), *nomen nudum*.

Eurya chinensis sensu Blume, Mus. Bot. Lugd.-Bat. **2**: 108(1856).—Miquel in Ann. Mus. Bot. Lugd.-Bat. **3**: 15(1866), in part.—Franchet & Savatier, Enum. Pl. Jap. 1: 58(1875).—Hemsley in Jour. Linn. Soc. London, **23**: 76(1886), in part.—Nakai in Jour. Coll. Sci. Tokyo, **26**: 100(1909).—Non R. Brown.

DISTRIBUTION: Japan, Liu Kiu Islands, Korea, China (Chekiang, Fukien).

JAPAN: prope Nagasaki (type, Thunberg Herb., Upsala; photo. AA); *R. Oldham* s.n.; *C. J. Maximowicz* s.n.; *K. Sakurai* s.n.

LIU KIU ISLANDS: *U. Faurie* 3821; *E. H. Wilson* 6057, 8043; *R. Kanehira* 3174, 3255, 3303, 3379; *G. Masamune* s.n.

KOREA: *E. Taquet* 2690, 2691; *U. Faurie* 493; *E. H. Wilson* 9555.

CHINA. CHEKIANG: *K. K. Tsoong* 116; *R. C. Ching* 1929.—FUKIEN: *W. Y. Chun* 8103; *H. H. Chung* 6201, 6356.

This species was described originally by Thunberg (1784) as *Ilex emarginata* and was not transferred to *Eurya* until 1904 when Makino made the transfer. It is characterized as a shrub or small tree with thick, coriaceous, cuneate, obovate to oblong-obovate, emarginate leaves with revolute, crenate-serrate margins. The young branchlets are clothed with a short, rufous-brown villous tomentum.

Considered confined to Korea, Japan and Liu Kiu, only recently material collected in Fukien and Chekiang shows this species as inhabiting China as well.

10a. ***Eurya emarginata* Makino var. *microphylla* Makino** in Bot. Mag. Tokyo, **24**: 29(1910).

DISTRIBUTION: Japan (cultivated).

JAPAN: Cultivated, Kyoto, Yamasiro Prov., Hondo, K. Shioto B978, Aug. 31, 1915.

This fine cultivated variety of *E. emarginata* is characterized by very small obovate-orbicular, emarginate leaves. Makino states that the leaves are 3.0–9.0 mm. long, 2.5–7.0 mm. wide. In the specimen examined for this study none were found to be over 7.0 mm. long. Also there were no evidences of flowers or fruit on the specimen studied. Makino makes no mention of these same parts in his original description. The branchlets are many and softly puberulent; the small leaves are regularly distichous.

Because of its small leaves it might at first be mistaken for *E. japonica* var. *microphylla*. However, the latter variety has larger, oblong-obtuse leaves, rounded apex, not emarginate and is glabrous throughout.

11. ***Eurya cuneata*, spec. nov.**

Frutex vel arbor parva, ramis ramulisque teretibus firmis, ramulis novissimis et gemmis ultimis pubescentibus; foliis oblongo-obovatis ad elliptico-obovatis 6–9 cm. longis et 2.0–3.5 cm. latis utrinque glabris basi subtus excepta supra fusco-viridibus subtus pallide viridibus obtuse acuminatis subtus distincte cuneatis integerrimis vel fere integerrimis, petiolis 5

mm. longis; floribus axillaribus singularibus vel binis; florum ♂ pedicellis 4 mm. longis, sepalis 5 crassis imbricatis obtusis 3 mm. longis, petalis 5 ad basin conjunctis rotundatis obtusis 4.0–4.5 mm. longis, staminibus 15, filamentis gracilibus 1.5 mm. longis, antheris apiculatis 1.0 mm. longis, ovariis rudimentariis; florum ♀ pedicellis 1 mm. longis, sepalis 5 glabris crassis obtusis 1.5 mm. longis, corolla non visa, ovario glabro ovato 1.5 mm. longo et 1 mm. lato, stylis connatis apice trifidis 1.10 mm. longis; fructu non viso.

DISTRIBUTION: China (Hainan).

CHINA. HAINAN: in thickets, Tingon, Dung Ka, alt. 600 m., *N. K. Chun & C. L. Tso 44274* (holotype, AA), Nov. 17, 1932 (small tree 4 m. high; flowers white; bark brownish gray) (AA, NY); *H. Y. Liang 64174*; *F. C. How 73578, 73709*; *C. Wang 34659, 36048*.

This species is characterized by entire or nearly entire, oblong-obovate or elliptic-obovate leaves, and firm, terete branches and branchlets which are pubescent when young. This pubescence is found also on the terminal buds. In margin it resembles somewhat *E. Macartneyi*. However, it can be quickly distinguished from *E. Macartneyi* by its pubescent buds and branchlets. From the material examined this species is confined to the island of Hainan.

11a. **Eurya cuneata** Kobuski var. **glabra**, var. nov.

A typo recedit ultimis gemmis glabris.

DISTRIBUTION: China (Hainan).

CHINA. HAINAN: in forest, Mo San Leng, alt. 900 m., *N. K. Chun & C. L. Tso 44325* (type, AA), Nov. 22, 1932 (tree 8 m.; bark gray; leaves deep green, glabrous; flowers white, fragrant); *N. K. Chun & C. L. Tso 44290*; *C. Wang 35942*; *H. Y. Liang 64380, 64381*.

Like the species, this variety is found only on the island of Hainan. It resembles the species in all respects save that it is strictly glabrous even to the young stems and terminal buds. As in the species the stamen number is 15 and the petals are united at the base.

12. **Eurya Fangii** Rehder in Jour. Arnold Arb. **11**: 165 (1930).

DISTRIBUTION: China (Szechuan).

CHINA. SZECHUAN: in thickets, Omei hsien, Mt. Omei, alt. 2600–2750 m., *W. P. Fang* 2917 (isotype, NY), Aug. 13, 1928 (shrub 1 m. tall); *E. Faber* 662.

This species is characterized by deeply impressed veins on the upper surface. Sharp points terminate the serrations on the leaves. Also distinctive are its hirsute branchlets and ciliolate sepals. The species is quite closely allied to *E. Handeliana* from which it differs especially in its smaller leaves and hirsute branchlets. Although occurring in both species the degree of vein impression is more pronounced in *E. Handeliana*.

13. ***Eurya chinensis*** R. Brown in Abel, Narr. Jour. China, 379, t.(1818).—DeCandolle, Prodr. 1: 525(1824).—Champion in Hooker's, Jour. Bot. & Kew Gard. Misc. 3: 307(1851); in Trans. Linn. Soc. London, 21: 113(1855).—Seemann, Bot. Voy. Herald, 366(1857).—Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893).—Dunn & Tutchter in Kew Bull. Misc. Inform. Add. Ser. 10: 44 (Fl. Kwangtung & Hong-kong)(1912).—Rehder & Wilson in Sargent, Pl. Wilson. 2: 400(1915).

Eurya parvifolia Gardner in Calcutta Jour. Nat. Hist. 7: 445(1847).

Eurya japonica Thunberg var. *δ. parvifolia* Thwaites, Enum. Pl. Zeyl. 41(1864).

DISTRIBUTION: China (Kwangtung, Fukien, Kwangsi, Yunnan), Formosa, Ceylon.

CHINA. KWANGTUNG: in fields, *C. Abel* s.n. (type in BM; photo. and fragment, AA); *K. Bushwell* 6336; *S. R. Chiang* 155; *N. K. Chun* 40064, 40477, 42237, 42238, 42866, 43004, 44419; *W. Y. Chun* 5043, 5501, 5503, 5519, 5596, 5713, 6061, 6238, 6422, 7176; *J. L. Gressitt* 1264; *S. Lam* 9490; *T. M. Tsui* 167, 423; *C. Wang* 1851, 31989, 37609, 37783; *W. T. Tutchter* 987; *Y. K. Wang* 1821, 1851; *K. K. Wang* 337, 592; *C. Wilford* s.n.; *C. Wright* 54; *S. K. Lau* 668, 675, 2385, 24440, 25329; *S. Y. Lau* 20060; *E. D. Merrill* 10290; *C. O. Levine* 191, 206, 1474, 1836, 1922, 3296, 3495; *S. P. Ko* 53743, 53753; *F. A. McClure* 7091; *H. F. Hance* 497; *F. C. How* 71155; *F. H. Hwang* 9390, 9425, 9462; *T. C. Lai* 6, 45; *H. Y. Liang* 61843, 61866; *C. S. Niu* 8105; *W. T. Tsang* 4, 20166, 20338, 20534, 21610; *Y. Tsiang* 1139, 1146, 1602, 1729, 3298, 3554; *C. L. Tso* 20457, 21396, 21543.—FUKIEN: *F. P. Metcalf* 5917.—YUNNAN: *G. Forrest* 7663, 9367, 9689, 11728, 12209, 25334; *H. T. Tsai* 55608, 55965, 55971, 56484.—KWANGSI: *S. T. Hwang* 1025, 1122; *R. C. Ching* 7776, 8048, 8698; *W. T. Tsang* 22008, 23353; *H. Y. Liang* 67134, 67186; *W. H. Soo* 68212.

FORMOSA: *S. Suzuki* 3507; *J. L. Gressitt* 81; *T. Tanaka* 13474; *U. Faurie* 285, 292; *G. Masamune* & *K. Mori* s.n.; *A. Henry* 375, 1465.

CEYLON: *Walker* (C.P.) 784.

The young branchlets and terminal buds are pubescent. The leaves are obovate, bluntly acuminate at apex, distinctly cuneate at base. The specimens are usually small-leaved, sometimes larger, however, always in proportion.

Eurya emarginata is similar to this species but can be separated by its heavier, coriaceous leaves which are always rounded-emarginate at the apex rather than bluntly acuminate. The leaf-margin in leaves of *E. emarginata* are also usually revolute.

The geographical distribution of *E. chinensis* seems very incomplete. However, when other states of China have been worked over and studied to the extent that the flora of Kwangtung has, the gaps in distribution, evident at present, will be filled in. This species must grow profusely because along with the original description the author, in discussing the landscape, remarked that it was covered with this species of *Eurya*.

14. ***Eurya ceylanica*** Wight, Ill. Indian Bot. 1: 98(1838).—Gardner in Calcutta Jour. Nat. Hist. 7: 444(1847).—Thiselton-Dyer in Hooker, f., Fl. Brit. Ind. 1: 285(1874).

Eurya japonica Thunberg var. γ . *chinensis* Thwaites, Enum. Pl. Zeyl. 41(1864).

DISTRIBUTION: Ceylon.

CEYLON: *T. Thomson* s.n.; *E. Gardner* 91; *T. Petch* s.n.

Only four specimens were available for study. Two of these four (Thomson, Gardner) are quite authentic specimens and figured in the early literature of this species.

The species is characterized by heavy coriaceous leaves (4–6 cm. long, 1.5–2.5 cm. wide) with veins impressed on the upper surface and pronouncedly upraised on the lower surface. The margins are generally revolute and serrate for the upper three-quarters. Also the leaves are cuneate at the base and obtusely acuminate at the apex. The terminal bud is hairy, as are the younger branchlets and midrib of the leaves. The styles are short and recurved.

Because of its heavily veined reticulate under-surface of the leaves, this species at first resembles *E. glandulosa* Merrill. However, the distinctly cuneate base of the leaf, in contrast to

the lobed, subsessile base of *E. glandulosa*, immediately identifies it.

15. ***Eurya acuminata*** DeCandolle in Mém. Soc. Phys. Genève, 1: 418 (Mém. Fam. Ternstroem. 26) (1822); Prodr. 1: 525 (1824).—Wallich, Num. List, No. 1464 (1828).—Royle, Ill. Bot. Himal. 1: 127 (1834); 2: t. 24 (1839).—Walpers, Repert. Bot. Syst. 1: 370 (1842).—Blume, Mus. Bot. Lugd.-Bat. 2: 117 (1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345 (1857).—Thiselton-Dyer in Hooker f., Fl. Brit. Ind. 1: 285 (1874).—Kurz in Jour. As. Soc. Bengal, 43²: 91 (Burmese Fl.) (1874).—Theobald in Mason, Burma, 2: 631 (1883).—Trimen, Handb. Fl. Ceylon, 1: 110 (1893).—Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190 (1893).—Kanjilal, For. Fl. School Circle, N-W.P. 31 (1901); For. Fl. Siwalik & Jaunsar For. Div. U.-P. Agra & Oudh, 53 (1911).—Strachey, Cat. Pl. Kumaon Adj. Port. Garhwal & Tibet, 22 (1906).—Rehder & Wilson in Sargent, Pl. Wilson. 2: 400 (1915).—Ridley, Fl. Malay Pen. 1: 199 (1922).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 147 (1925).—Osmaston, For. Fl. Kumaon, 42 (1927).—Yamamoto in Sylvia, 5: 38, fig. 23 (1934).

Eurya multiflora DeCandolle in Mém. Soc. Phys. Genève, 1: 417 (Mém. Fam. Ternstroem. 25) (1822); Prodr. 1: 525 (1824).

Geeria serrata Blume, Bijdr. Fl. Nederl. Ind. 3: 124 (1825).

Geeria serrata Blume var. *sericea* Blume, Bijdr. Fl. Nederl. Ind. 3: 124 (1825).

Geeria angustifolia Blume, Bijdr. Fl. Nederl. Ind. 3: 125 (1825).

Ternstroemia bifaria Hamilton ex D. Don, Prodr. Fl. Nepal. 145 (1825), pro. synonym.

Diospyros serrata Hamilton ex D. Don, Prodr. Fl. Nepal. 145 (1825).

Eurya angustifolia Wallich, Num. List, no. 1465 (1828), *nomen nudum*.—Walpers, Repert. Bot. Syst. 1: 370 (1842).

Eurya lucida Wallich, Num. List, no. 1462 (1828), *nomen nudum*.—Blume, Mus. Bot. Lugd.-Bat. 2: 118 (1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345 (1857).

Eurya bifaria Wallich, Num. List, no. 3721 (1829), *nomen nudum*.

Eurya euprista Korthals in Temminck, Verh. Nat. Gesch. Bot. 3: 113 (1840).—Walpers, Repert. Bot. Syst. 1: 369 (1842).—Blume, Mus. Bot. Lugd.-Bat. 2: 116 (1856).—DeVries, Pl. Ind. Bat. Orient. Reinw. 28 (1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345 (1857).—Miquel, Fl. Nederl. Ind. 1²: 474 (1859).

Eurya Blumeana Korthals in Temminck, Verh. Nat. Gesch. Bot. 3: 119 (1840).—Walpers, Repert. Bot. Syst. 1: 369 (1842).—Blume, Mus. Bot. Lugd.-Bat.

- 2: 120(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 346(1857).—Miquel, Fl. Nederl. Ind. 1²: 475(1859).—Koorders & Valeton, Bijdr. Boomsorten Java, 3: 245(1896).
- Eurya serrata* (Blume) Walpers, Repert. Bot. Syst. 1: 369(1842).—Blume, Mus. Bot. Lugd.-Bat. 2: 115(1856).—DeVries, Pl. Ind. Bat. Orient. Reinw. 29(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345(1857).—Miquel, Fl. Nederl. Ind. 1²: 474(1859).—Mason, Burma People Prodr. 2: 631(1883).
- Eurya angustifolia* (Blume) Walpers, Repert. Bot. Syst. 1: 369(1842).—Blume, Mus. Bot. Lugd.-Bat. 2: 119(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 346(1857).—Miquel, Fl. Nederl. Ind. 1²: 475(1859).
- Eurya membranacea* Gardner in Calcutta Jour. Nat. Hist. 7: 444(1847).
- Eurya phyllanthoides* Blume, Mus. Bot. Lugd.-Bat. 2: 110(1856).—DeVries, Pl. Ind. Bat. Orient. Reinw. 27(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 343(1857).—Miquel, Fl. Nederl. Ind. 1²: 470(1859), “*E. phyllanthoides*”; Ann. Mus. Bot. Lugd.-Bat. 4: 105(1868-69).—Vesque in Bull. Soc. Bot. France, 42: 153(1895).
- Eurya phyllanthoides* Blume var. *brevifolia* Blume, Mus. Bot. Lugd.-Bat. 2: 111(1856).—DeVries, Pl. Ind. Bat. Orient. Reinw. 28(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 343(1857).
- Eurya serrata* Walpers var. *firma* Blume, Mus. Bot. Lugd.-Bat. 2: 116(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345(1857).
- Eurya serrata* Walpers var. *membranacea* Blume, Mus. Bot. Lugd.-Bat. 2: 116(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345(1857).
- Eurya euprista* Korthals β . var. *heteroidea* Blume, Mus. Bot. Lugd.-Bat. 2: 117(1856).
- Eurya acuminata* DeCandolle var. *multiflora* Blume, Mus. Bot. Lugd.-Bat. 2: 117(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345(1857).
- Eurya Wallichiana* Blume, Mus. Bot. Lugd.-Bat. 2: 118(1856), non Steudel.
- Eurya salicifolia* Blume, Mus. Bot. Lugd.-Bat. 2: 118(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 346(1857).
- Eurya confinis* Blume, Mus. Bot. Lugd.-Bat. 2: 119(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 346(1857).
- Eurya confinis* Blume var. *fusca* Blume, Mus. Bot. Lugd.-Bat. 2: 119(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 346(1857).
- Eurya rostrata* Blume, Mus. Bot. Lugd.-Bat. 2: 119(1856).—Miquel, Fl. Nederl. Ind. 1²: 475(1859).
- Eurya clandestina* Blume, Mus. Bot. Lugd.-Bat. 2: 121(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 346(1857).—Miquel, Fl. Nederl. Ind. 1²: 476(1859).—Vesque in Bull. Soc. Bot. France, 42: 154(1895).
- Eurya clandestina* Blume var. *minor* Blume, Mus. Bot. Lugd.-Bat. 2: 121(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 347(1857).
- Eurya hirsutula* Miquel, Sumatra, 477(1862).
- Eurya japonica* Thunberg var. β . *acuminata* Thwaites, Enum. Pl. Zeyl. 41(1864).
- Eurya japonica* Thunberg var. *phyllanthoides* (Blume) Thiselton-Dyer in Hooker f., Fl. Brit. Ind. 1: 284(1874).—Koorders & Valeton, Bijdr. Boomsorten Java, 3: 237(1896).
- Eurya acuminata* DeCandolle var. *euprista* (Korthals) Thiselton-Dyer in

- Hooker f., Fl. Brit. Ind. 1: 285(1874).—Pitard in Lecomte, Fl. Gén. Indo-Chine, 1: 339(1910).—Baker f., in Jour. Bot. 62: suppl. 9(1924).
Eurya Wrayi King in Jour. As. Soc. Beng. 52²: 196(1890).—**Syn. nov.**
Eurya acuminata DeCandolle var. *monticola* Ridley in Jour. Str. Br. Roy. As. Soc. 16: 1(1912).—**Syn. nov.**
Eurya arisanensis Hayata, Icon. Pl. Formos. 8: 6, fig. 4(1919).—Yamamoto in Jour. Soc. Trop. Agric. 5: 348(1933).—Makino & Nemoto, Fl. Japan, ed. 2. 741(1931).—Yamamoto in Sylvia, 5: 39, fig. 24(1934).—**Syn. nov.**
Eurya Matsudai Hayata, Icon. Pl. Formos. 9: 6, fig. 5(1920).—Sasaki, List. Pl. Formos. 293(1928).—Makino & Nemoto, Fl. Japan, ed. 2. 742(1931).—Yamamoto in Jour. Soc. Trop. Agric. 5: 349(1933); in Sylvia, 5: 41, fig. 31(1934).—**Syn. nov.**
Eurya nitida Korthals var. *strigillosa* Handel-Mazzetti, Symb. Sin. 7¹: 400(1931).—**Syn. nov.**
Eurya glaberrima Hayata var. *acuminata* Suzuki in Ann. Rept. Taihoku Bot. Gard. 1: 158(1931).—**Syn. nov.**
Eurya Suzukii Yamamoto in Jour. Soc. Trop. Agric. 5: 349(1933); in Sylvia, 5: 42, fig. 34(1934).—**Syn. nov.**

DISTRIBUTION: India, Malay Peninsula, Ceylon, Java, Sumatra, Formosa, China (Szechuan, Yunnan).

INDIA: Nepal, *N. Wallich* 1464, in part (type; photo. and fragment, AA); *N. Wallich* 1464, in part (type of *E. multiflora*; photo. and fragment, AA); *N. Wallich* 1462 (type of *E. lucida*; photo. and fragment, AA); *N. Wallich* 1463 (type of *E. Roxburghii*; photo. and fragment, AA); *N. Wallich* 3721 (type of *E. bifaria*; photo. and fragment, AA); *E. Gardner* s.n. (type of *E. nephalensis*; photo. and fragment, AA); *J. D. Hooker* s.n.; *J. D. Hooker & T. Thompson* s.n.; *B. Ram* 152, 2335; *A. E. Osmaston* 216, 218; *A. T. Gage* 93; *H. Singh* 238; *W. Griffith* 738; *N. E. Parry* 845; *R. N. Parker* 2042, 2118; *R. R. Stewart* 11411, 13224.

MALAY PENINSULA: Penang, *N. Wallich* 1465 (type of *E. angustifolia*; photo. and fragment, AA); Perak, *L. Wray* 1273 (type of *E. Wrayi*; photo. AA); Perak, *H. N. Ridley* s.n. (type of *E. acuminata* var. *monticola*; photo. and fragment, AA); *Haniff* 227; *A. C. Maingay* 187, 1069; *J. F. Rock* 1807; *M. R. Henderson* 22670.

CEYLON: *E. Gardner* 92 (type of *E. membranacea*; photo. and fragment, AA); *G. Thwaites* s.n.

JAVA: Buitenzorg, *C. L. Blume* s.n. (isotype of *E. phyllanthoides*, AA, G, NY); *C. L. Blume* s.n. (isotype of *E. clandestina*, G, NY); *collectors unidentified* (isotype of *E. serrata*, NY; *E. serrata* var. *membranacea*, G; *E. serrata* var. *firma* G, NY; *E. serrata* var. *confinis*, photo. and fragment, AA; *E. clandestina* var. *minor*, G; *E. rostrata*, NY; *E. euprista*, NY); *W. H. de Vriese* s.n.; *J. E. Teysmann* s.n.; *Lobb* s.n.; *O. Warburg* 3367, 3368.

SUMATRA: Supajang Distr., *J. E. Teysmann* s.n. (isotype of *E. hirsutula*, G); *collector unidentified* (isotype of *E. euprista* var. *heteroidea*, G); *C. Hamel & R. S. Toroes* 1161; *B. A. Krukoff* 325, 328, 4404; *R. S. Toroes* 155, 1570, 1733, 1874, 2193, 2389, 2742, 3017, 3996, 4352, 4414; *H. S. Yates* 804, 875, 1006, 1045, 1916, 1933, 2403; *W. N. & C. M. Bangham* 1094; *H. O. Forbes* 1941, 2482; *H. H. Bartlett* 7119, 7607, 7742, 8038, 8326.

FORMOSA: *R. Kanehira* 2847, 21163; *U. Faurie* 294, 1328, 1329; *A. Henry* 122; *J. L. Gressitt* 268, 274, 293; *O. Warburg* 9976; *E. H. Wilson* 9676, 9726, 10858.

CHINA. SZECHUAN: *T. T. Yü* 1533, 1775; *F. T. Wang* 22782.—YUNNAN: *Y. Tsiang* 11958, 12339; *G. Forrest* 22586; *A. Henry* 11171, 11414a; *E. H. Wilson* 4767; *H. T. Tsai* 54230, 54238, 54439, 56693, 57394, 57613, 57983, 58341, 58364, 59881, 59920.

DeCandolle described *E. acuminata* and *E. multiflora* in the same publication with the latter name having page priority over the name accepted in this paper. However, since page priority no longer is considered a nomenclatorial rule the name *E. acuminata*, because of its long use in botanical literature, is accepted without hesitation. To use the name *E. multiflora* would confuse the literature of the species.

The synonyms cited in this paper are many. Most of these names have figured very little in botanical literature. The characters used in delimiting the species are very trivial and some species possess no seeming differences at all. Professor Rehder, of the Arboretum Staff, while on his recent visits to European herbaria searched diligently for types of this genus and returned with photographs and fragments of most of these species. They are deposited now in the herbarium of the Arnold Arboretum. These photographs and fragments have helped tremendously in working over this species.

Eurya Wrayi, *E. arisanensis*, *E. Matsudai*, *E. glaberrima* var. *acuminata*, *E. nitida* var. *strigillosa* and *E. Suzukii* are the modern species found in this study to be synonymous with *E. acuminata*. No discussion of these transfers is really necessary. The Formosan botanists before me have realized that their species were probably the same as *E. acuminata*. This they have shown by their recent determinations of Formosan material.

Eurya nitida var. *strigillosa* Handel-Mazzetti undoubtedly belongs to *E. acuminata*, resembling the species in all respects. The apex of the leaf may be a little less acuminate than usual, but in *Schneider* 2702, a paratype of var. *strigillosa*, the apex is typical. *Eurya nitida* is characterized by its strict absence of pubescence even to the terminal bud. Also the young stem is pronouncedly winged. In *E. nitida* var. *strigillosa*, as in *E. acuminata*, the branchlets are quite terete.

A photograph of the type of *E. Wrayi* King shows that

although the leaf base is perhaps a little less tapering than the majority of specimens of *E. acuminata*, this character, along with pointed leaf buds, not only fails to present enough basis for describing a new species but is not sufficiently varying for a variety.

15a. ***Eurya acuminata* DeCandolle var. *Groffii* Merrill, comb. nov.**

Eurya acuminata DeCandolle var. *multiflora* sensu Rehder & Wilson in Sargent, Pl. Wilson. 2: 401 (1915), non Blume.

Eurya Groffii Merrill in Philipp. Jour. Sci. 25: 247 (1919).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148 (1925).

DISTRIBUTION: China (Kwangtung, Kweichow, Kwangsi, Szechuan, Yunnan).

CHINA. KWANGTUNG: on mountain sides, Tiu Kaan Shan, Tsen Uen, G. W. Groff 2378 (holotype of *E. Groffii* Merr., NY); H. T. Ho 60112; S. Lam 9511; H. Y. Liang 61827, 61829, 61844; C. Wang 30172, 30196, 37236, 38720; K. K. Wang 386, 1825; S. P. Ko 50111, 53624, 53739, 54606; H. Handel-Mazzetti 66; C. O. Levine 3159; W. T. Tsang 22945; N. K. Chun 41287; Y. Tsiang 540; F. C. How 72031; W. Y. Chun 5989; S. K. Lau 811; C. L. Tso 21393, 23746; T. M. Tsui 609.—KWEICHOW: Y. Tsiang 4363, 4647, 7219, 9208, 9233; A. N. Steward, C. Y. Chiao & H. C. Cheo 321.—KWANGSI: Y. C. Wang 5256; S. K. Lee 81252; S. P. Ko 55575, 55934, 55958, 56020; R. C. Ching 7251, 8174; W. H. Soo 68186, 68559, 69028; H. Y. Liang 65842, 65889, 66930, 67116.—SZECHUAN: E. H. Wilson (Veitch) 4768; W. P. Fang 2338.—YUNNAN: H. Handel-Mazzetti 2702 (iso-paratype of *E. nitida* var. *strigillosa* Hand.-Mazz., AA); Y. Tsiang 12196, 12299, 12683, 13332; G. Forrest 7671, 9315, 16059; J. F. Rock 1997, 2461, 6996, 7072; A. Henry 9021, 10914B; H. T. Tsai 51526, 51768, 52460, 52596, 53134, 54213, 54615, 54828, 54945, 55385, 55673, 55840, 56491, 56661, 56772, 56949, 58863, 58946, 58973, 59114, 59153, 60417, 60679, 61049.

The geographical range of *E. acuminata* is probably the most extensive of any species in the whole genus. Naturally, as expressed above, this species is also the most variable. In the case of this variety, the author has vacillated in his opinion whether to include it under the species or to recognize it as a separate variety. From the material at hand it appears that *E. acuminata* var. *Groffii* is confined to China while the species itself is found only occasionally in Szechuan and Yunnan.

This variety is the same as Rehder's interpretation of *E. acuminata* var. *multiflora*. The leaves, stems and calyx lobes are considerably more pubescent and the leaves are generally narrower, tapering gradually from base to apex. In the

species, the leaves swell toward the middle, tapering off abruptly.

16. **Eurya cerasifolia** (D. Don), comb. nov.

Diospyros cerasifolia D. Don, Prodr. Fl. Nepal. 144(1825).

Eurya symplocina Blume, Mus. Bot. Lugd.-Bat. 2: 144(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345(1857).—Thiselton-Dyer in Hooker f., Fl. Brit. Ind. 1: 284(1874).—Kurz in Jour. As. Soc. Bengal. 43²: 91 (Burmese Fl.) (1874).—Theobald in Mason, Burma People Prodr. 2: 631(1883).—Vesque in Bull. Soc. Bot. France, 42: 154(1895).—Szyszylowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893).—Duthie, Fl. Upper Gangetic Plain, 1: 74(1903).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

Eurya Wallichiana Planchon ex Thiselton-Dyer in Hooker f., Fl. Brit. Ind. 1: 285(1874), non Steudel.

DISTRIBUTION: India, Indo-China, China (Yunnan).

INDIA: Nepal, *N. Wallich* 1464, in part (type of *E. symplocina*, photo. and fragment, AA); *E. H. Wilson* s.n.; *J. D. Hooker* s.n.; *T. Thomson* s.n.; *L. F. Ruse* 401; *W. Griffith* 737; *J. S. Gamble* s.n.; *J. F. Rock* 7486.

INDO-CHINA: *A. Petelot* 1518A.

CHINA. YUNNAN: *J. F. Rock* 7668; *G. Forrest* 881; *H. T. Tsai* 55002, 56882.

The type specimen of *Diospyros cerasifolia* D. Don has not been seen by the author. This new combination has been made on the strength of Hooker's identification of *D. cerasifolia* with *Eurya symplocina*, since it is evident from the material studied that Hooker understood this species very well. The description of *D. cerasifolia* by Don is rather brief; he states that possibly it may be a new genus.

This close relative of *E. acuminata* is characterized by large leaves (10–13 cm. × 3–4 cm.), oblong-elliptic, entire or serrulate above, obtusely acuminate, usually membranaceous, appressed-pubescent beneath. The branchlets and terminal leaf-buds are pubescent.

17. **Eurya Loquaiana** Dunn in Jour. Linn. Soc. Bot. 38: 355 (1908).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

DISTRIBUTION: China (Fukien, Kwangtung, Hainan, Chekiang, Kwangsi, Kweichow, Szechuan).

CHINA. FUKIEN: in woods on mountain sides near Yenping, alt. 700 m., *LoQuai*, (*Hongkong Herb. no.*) 2395 (holotype; photo. and fragment AA, NY); *H. H. Chung* 2832, 3414.—KWANGTUNG: *W. Y. Chun* 5676, 5737, 7404; *N. K. Chun*

41413, 42115, 42870, 42880; C. S. Niu 7999, 8003; S. P. Ko 50832, 50896, 51840, 51887, 53594, 53597; H. Y. Liang 60866, 61047; C. Wang 31036, 31278, 38133; C. Wang & H. Y. Liang 31276, 31321; S. K. Lau 916, 2013; Y. Tsiang 1353.—HAINAN: C. Wang 35240; F. C. How 73276.—CHEKIANG: R. C. Ching 2569; C. Y. Chiao 14700.—KWANGSI: R. C. Ching 5721; W. T. Tsang 22778.—KWEICHOW: Y. Tsiang 4124, 4430, 4781, 4824, 4999, 5001, 5302, 5490, 6730, 7015, 7605, 7457, 7496, 7726, 7808, 9196, 9330.—SZECHUAN: W. P. Fang 2267, 5734; Y. Chen 5716.

Dunn in his original description states that this species is entirely glabrous except for the flower-bud. As a result most workers have been placing material of the closely allied and strictly glabrous *E. nitida* under the name *E. Loquaiana*. A note on a leaf-tracing made from the type by E. D. Merrill while at Kew throws considerable light on the situation. “. . . styles fruit glabrous. Branchlets very slender, minutely puberulent.” Here lies the answer! Instead of flower-buds being pubescent Dunn meant terminal leaf-buds. If the branchlets are puberulent, the leaf-buds in this genus also are puberulent. Material collected at the type locality was found to match perfectly with this new concept of *E. Loquaiana*.

The geographical range of this species is considerably extended to the states listed above.

Following is a description of the male flower made from specimen C. Wang & H. Y. Liang, no. 31276, collected in Kwangtung. Sepals 5, slightly pubescent, 1.25 mm. long, subtended by obtuse bracts; petals 5, joined at base, 4.5 mm. long, 2 mm. wide, rounded; stamens 10, filaments 2 mm. long, slender, anthers 1.25 mm. long, apiculate.

Besides the characters mentioned by Dunn, one of importance is the distinct veining on the under surface of the leaves. The veins are usually yellow and raised against the reddish-brown background of the leaf. This attractive meshwork is very noticeable and helpful in identifying the species.

18. **Eurya disticha** Chun in Sunyatsenia, 2: 52, pl. 15 (1934); in Hu & Chun, Icon. Pl. Sin. 5: 5, pl. 205 (1937).

DISTRIBUTION: China (Kwangtung).

CHINA. KWANGTUNG: on mountain top, Sunyi, C. Wang 31000 (type, SY), July 20, 1931 (small shrub with deep blue fruit); C. Wang 31949, 37887, 37894; N. K. Chun 42636; J. L. Gressitt 1259.

A small shrub with distichous branches. The branchlets are subterete, the youngest parts densely covered with long brownish silky spreading hairs becoming glabrous with age. The leaves are chartaceous, 2-ranked, contiguous or nearly so, oblong, 2.0–3.5 cm. long, 0.7–1.0 cm. wide, auriculate at the base, clasping the stem; the basal lobes are rounded. The apex of the leaf is bluntly acuminate. The style is about 2 mm. long, trifid, joined for most the distance, at least in young flowers. The ovary is glabrous.

The male flowers evidently were not available when Chun drew up his description for the species. The following description is taken from flowers (♂) taken from *C. Wang*, no. 37887. The flowers are axillary usually one to an axil, with a pedicel about 1.5 mm. long. The bracts are minute, oblong, tipped by dark glands. The calyx consisting of 5 sepals is very small for the genus, 1.0 mm. long. The sepals are tipped at the apex by a conspicuous dark gland appearing at first glance as a mucron. This glandular character may have been unnoticed by Chun but it is present in the ♀ flower as well. The 5 petals are approximately 4.5 mm. long, 2.0–2.25 mm. wide, oblong, emarginate at the apex. There are 10 stamens; the filaments are 2.5 mm. long while the anthers are 1.5 mm. long. These latter are apiculate at the apex. Present also is a rudimentary ovary.

19. ***Eurya trichocarpa*** Korthals in Temminck, Verh. Nat. Gesch. Bot. 3: 114(1840).—Blume, Mus. Bot. Lugd.-Bat. 2: 115(1856).—Miquel, Fl. Nederl. Ind. 1²: 473(1859); in Ann. Mus. Bot. Lugd.-Bat. 4: 105(1868–69).—Thiselton-Dyer in Hooker f., Fl. Brit. Ind. 1: 285(1874).—Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893).—Vesque in Bull. Soc. Bot. France, 42: 161(1895).—Ridley, Fl. Malay. Pen. 1: 200(1922).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

Eurya trichogyna Blume, Mus. Bot. Lugd.-Bat. 2: 114(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 345(1857).

Eurya acuminatissima Merrill & Chun in Sunyatsenia, 1: 72(1930).—Handel-Mazzetti in Beih. Bot. Centralbl. 48: 309(1931).—Chun in Hu & Chun, Icon. Pl. Sin. 5: 4, pl. 204(1937).—**Syn. nov.**

DISTRIBUTION: Amboina, Borneo, Philippine Islands, India, Indo-China, China (Kwangtung, Kwangsi).

AMBOINA: *Zippel s.n.* (type; photo. and fragment, AA).

BORNEO: *J. & M. S. Clemens* 22336, 26166, 26283, 26374, 27705, 29739, 30196, 34020, 34456, 35092; *M. S. Clemens* 1597, 2022, 9827.

PHILIPPINE ISLANDS. MINDANAO: *A. D. E. Elmer* 10871, 10872, 11467.—LUZON: *F. Canicosa* (*For. Bur. No.*) 30303; *M. Ramos & G. Edano* (*Bur. Sci. no.*) 38727, 38965, 43893.

INDIA: *W. Griffith* 736.

INDO-CHINA: *A. Petelot* 3781, 3882, 4310.

CHINA. KWANGTUNG: in open, on side of mountain, Yingtak, *C. Wang* 516 (type of *E. acuminatissima*), Jan. 14, 1929; *H. Y. Liang* 60839, 61165, 61263, 61354, 61355; *C. Wang* 32150, 38578; *C. Wang & H. Y. Liang* 31323; *Z. S. Chung* 11099; *W. H. Soo* 68141; *S. P. Ko* 50809, 53507, 53741, 53783; *W. T. Tsang* 20644, 20885; *J. L. Gressitt* 1367, 1541; *C. L. Tso* 20579, 20697, 22693; *S. K. Lau* 23925, 25221; *W. Y. Chun* 5899; *S. P. Kwok* 80128; *N. K. Chun* 40025, 41844, 41897, 42026, 42874, 42906; *R. Mell* 765.—KWANGSI: *W. T. Tsang* 22342, 22670, 22739, 23281; *R. C. Ching* 8377.

This species is probably one of the most misunderstood in the genus. Usually it is glanced at casually and labeled *E. acuminata*. The outstanding feature is its pubescent ovary. At anthesis the ovary is covered with a mass of silvery-white, silky hairs. During maturity the fruit becomes glabrescent and in some cases it is very difficult to distinguish the species. During anthesis, when the calyx-lobes have just opened, the corolla is usually conical in shape. The leaves are caudate-acuminate, entire for some distance above the cuneate base and throughout the acumen but usually serrulate from the lower one-third to the base of the acumen. The style is trifid and united.

20. ***Eurya velutina*** Chun in *Sunyatsenia*, 2: 57(1934); in Hu & Chun, *Icon. Pl. Sin.* 5: 9, pl. 209(1937).

DISTRIBUTION: China (Kwangtung).

CHINA. KWANGTUNG: in mixed woods, Sunyi Distr., *C. Wang* 30903 (isotype, AA); July 14–August 20, 1931 (tree 12 m. tall; leaves green above, paler beneath; fruit green, pubescent); *C. Wang* 31786, 37925.

This species is characterized by its large, ellipsoid, pilose fruit, its long style (4 mm.) which apparently is connate for most its length, its stout branches with 1–4 large fruits maturing together. Chun refers to the branches as angular. To me

they seem more terete or perhaps subterete in contrast to the distinctly angular branches of several other species. The large elliptic-oblong leaves (12–15 cm. long, 4–5 cm. wide) on the stout stem, the size of the tree (36–80 ft.), along with the other robust characters, make this species very outstanding in the genus.

21. **Eurya distichophylla** Hemsley in Jour. Linn. Soc. Bot. **23**: 77(1886).—Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. **6**: 190(1893).—Dunn & Tutcher in Kew Bull. Misc. Inform. Add. Ser. (Fl. Kwangtung & Hongkong), **10**: 43(1912).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, **21**: 148(1925).

Eurya Swinglei Merrill in Philipp. Jour. Sci. Bot. **12**: 106(1917).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, **21**: 148(1925).—Handel-Mazzetti in Beih. Bot. Centralbl. **48**: 310(1931).—**Syn. nov.**

DISTRIBUTION: China (Fukien, Kwangtung, Kiangsi, Kwangsi, Kweichow).

CHINA. FUKIEN: Amoy, *R. Swinhoe* s.n. (type; photo. and fragment, AA).—KWANGTUNG: Loh Fau Mt., *Merrill 10233* (holotype of *E. Swinglei*), Oct. 28, 1916; *R. Mell 680*; *C. O. Levine 1995*; *W. Y. Chun 6334*; *E. D. Merrill 10766*; *W. T. Tsang 20151, 21010, 21168, 21524*; *C. L. Tso 21635*; *S. K. Lau 24427, 25004, 25050*; *C. Wang 30913, 31608, 31617, 31874, 37302, 37865, 37868*; *N. K. Chun 41096, 41293, 43012, 43040*; *H. T. Ho 60031*.—KIANGSI: *Y. Tsiang 10242*.—KWANGSI: *S. K. Lee 81273*; *W. T. Tsang 22818, 23173*; *H. Y. Liang 67412*.—KWEICHOW: *Y. Tsiang 4659, 4993, 4995, 5780, 5961, 6296, 7751*; *S. Y. Teng 1408, 10636*.

This species is one of the few characterized by pubescent ovaries and fruit. In the flower the ovary is silky villous and possesses an elongated style which is connate for part its length. Upon maturity the fruit, unlike its near relative *E. trichocarpa*, does not become glabrescent but possesses longish straggling hairs. The leaves are subsessile and are arranged distichously on the stem. *Eurya distichophylla* was based on male flowers. The female flowers were described under *E. Swinglei* by Merrill and at the time thought to belong to a new species.

21a. **Eurya distichophylla** Hemsley var. **Henryi** (Hemsley), comb. nov.

Eurya Henryi Hemsley in Hooker's Icon. **28**: sub t. 2761(1903).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, **21**: 148(1925).

DISTRIBUTION: China (Yunnan).

CHINA. YUNNAN: mountains to the east of Mengtze, alt. 2135 m., *A. Henry* 11342 (isotype of *E. Henryi*, AA, NY); *H. T. Tsai* 51563, 51682, 62650; *Y. Tsiang* 13253.

This variety, originally described as *E. Henryi*, can be distinguished from *E. distichophylla* only by its glabrous calyx. From the material examined, it seems to be confined to the state of Yunnan.

22. ***Eurya ciliata*** Merrill in Philipp. Jour. Sci. 23: 253 (1923); in Lingnan Sci. Jour. 5: 130(1927).

Eurya patentipila Chun in Sunyatsenia, 2: 56(1934); in Hu & Chun, Icon. Pl. Sin. 5: 6, pl. 206(1937).—Syn. nov.

DISTRIBUTION: China (Hainan, Kwangtung, Kwangsi).

CHINA. HAINAN: Ng Chi Leng, *F. A. McClure* 9319 (holotype, NY), April 28, 1922; *N. K. Chun* 44009, 44048; *W. T. Tsang & H. Fung* 643; *H. Fung* 20184; *C. Wang* 33508, 34527; *H. Y. Liang* 62272, 62278, 62618, 64701, 65339; *F. C. How* 71984, 73311, 73754.—KWANGTUNG: shrub in thickets, *S. P. Lo* 50831 (isotype of *E. patentipila*, AA), Nov. 10, 1930; *C. Wang* 31149, 32122, 38001, 38013.—KWANGSI: *R. C. Ching* 7126; *W. T. Tsang* 22852; *H. Y. Liang* 67402; *Kwangsi Museum* 178.

The young branchlets are densely covered with long spreading silky yellowish hairs becoming glabrescent with age. The leaves are coriaceous, short-petioled or subsessile, oblong-lanceolate, 5–9 cm. long, 2.0–2.5 cm. wide, rounded-oblique at the base, minutely cordatulate, gradually acuminate at the apex, densely long-pilose pubescent on the midrib with the veins obscure on both surfaces. The fruit (fide Chun) is ovoid-globose, 4.0–5.5 mm. long, scattered pilose. The style is glabrous, 4 mm. or more long, usually 4-fid, filiform, free. The calyx and ovary are densely pubescent.

In comparing the types of *E. ciliata* and *E. patentipila*, no differences could be found to possibly distinguish them as separate species.

23. ***Eurya strigillosa*** Hayata in Jour. Coll. Sci. Tokyo, 25: Art. 19. 61(1908).—Kanehira, Formos. Trees, 57, f. (1917).—Yamamoto in Sylvia, 5: 42, f. 33(1934).—Makino & Nemoto, Fl. Japan, ed. 2, 743(1931).

DISTRIBUTION: Formosa.

FORMOSA: *R. Kanehira* 2933, 21187; *U. Faurie* 288, 1325.

In pubescence and leaf-shape this species is very similar to *E. ciliata* of Hainan and Kwangtung. The ovary and fruit are invested with stiff hairs. Here it resembles also *E. gnaphalocarpa* and *E. trichocarpa*. However, unlike the last two species, whose stems are glabrous or nearly so, *E. strigillosa* has strong strigillose hairs along the branchlets and on the terminal bud.

24. **Eurya gnaphalocarpa** Hayata, Icon. Pl. Formos. 8: 7, f. 5(1919).—Yamamoto in Sylvania, 5: 40, f. 27(1934).

DISTRIBUTION: Formosa, Philippine Islands.

FORMOSA: *U. Faurie* 1328, in part; *E. H. Wilson* 10845.

PHILIPPINE ISLANDS. LUZON: *M. Ramos* 76998.—SABTANG: *M. Ramos* 79879.

Resembling *E. trichocarpa* in its pubescent ovary, this species differs in leaf characters and floral parts. In *E. trichocarpa* the leaves are somewhat narrower and taper off abruptly at first and then are drawn out more finely to an attenuate apex. In this species the apex is less attenuate and the tapering off is very gradual. In the male flowers, a rudimentary, pilose ovary is present. This species was confined formerly to Formosa but in this study the range has been extended south through Sabtang Island to Cayayan Province, Luzon.

25. **Eurya leptophylla** Hayata, Icon. Pl. Formos. 9: 5, f. 4(1920).—Yamamoto in Sylvania, 5: 41, f. 30(1934).—Suzuki in Ann. Rept. Taihoku Bot. Gard. 1: 158(1931).

DISTRIBUTION: Formosa.

FORMOSA: *E. H. Wilson* 9868, 10938; *U. Faurie* 289, 291, 1214, 1330, 1332; *R. Kanehira* 21198.

The leaves in *E. leptophylla* are small for the genus, being 3–3.5 cm. × 1–1.5 cm. At the same time they are quite membranaceous and oblong-lanceolate. The male flowers have 7–8 stamens and the styles in the female flowers are columniform; these may or may not split to near the base.

26. **Eurya crenatifolia** (Yamamoto), comb. nov.

Pseudoeurya crenatifolia Yamamoto in Jour. Soc. Trop. Agric. 5: 351(1933); in Sylvania, 5: 43, f. 36(1934).

DISTRIBUTION: Formosa.

FORMOSA: in monte Taiheizan, *S. Suzuki s.n.* (fragment of paratype, AA); *T. Tanaka & Y. Shimada 17764*; *E. H. Wilson 10177*; *J. L. Gressitt 420*.

Yamamoto first described this species under the genus *Pseudoeurya*. The outstanding feature of this new *Eurya* was the pentandrous male flowers. This character, unusual perhaps for Formosan euryas, is quite prevalent in the genus throughout the Pacific Islands, especially in New Guinea and the Fiji Islands, and alone is not worthy of generic status. However, this opinion is now shared with the original author who discussed this situation with me during his recent visit to this Arboretum. At the same time, he kindly gave me a fragment of one of the paratypes for the species.

The female flowers have very short styles and in fruit these persistent styles seem almost non-existent, the stigmas curving immediately away from the fruit.

Closely allied to this species is *E. leptophylla*. However, in the latter species the styles are longer and the stamen number is 7–8. The leaves are generally larger, more membranaceous and attenuate at the apex.

27. ***Eurya yaeyamensis*** Masamune in Jap. Soc. Pres. Landsc. Hist. Nat. Mon. **8**: 24(1933); in Trans. Nat. Hist. Soc. Formosa, **24**: 209(1934).

DISTRIBUTION: Liu Kiu Islands (Iriomote).

LIU KIU ISLANDS. IRIOMOTE: *R. Kanehira 3148* (isotype, NY), Dec. 30, 1933; jungle stream, alt. 100 m., *J. L. Gressitt 587*, Aug. 1934 (shrub 4 m.).

In drawing up his original description, Masamune neglected to stress a few points which are given here. The leaf size is 8.0–12.0 cm. long, 3.0–4.0 cm. wide. He states that the petiole is 4 mm. long. In the specimens studied here, the petiole is found to be as much as 10 mm. long. Masamune also states that there are six sepals, rarely five or seven. I find five sepals in all the flowers dissected. Also, instead of “about 16 stamens” as found by Masamune, I find the general number of twenty.

This species seems to be a gigantic *E. zigzag*. Unfortunately, I have not had a chance to study *E. zigzag*. Masamune recently, in discussing the genus with me, offered to send typical material of this species along with other representative

material from the Liu Kiu Islands. This will form the basic material for a supplementary study of *Eurya* in these interesting islands.

28. ***Eurya zigzag*** Masamune in Jour. Soc. Trop. Agric. 2: 48 (1930).

DISTRIBUTION: Liu Kiu Islands.

NO SPECIMEN EXAMINED.

This species, although not studied from actual material, is undoubtedly one of good standing. Actual specimens will be received for study from Masamune when the genus as represented on the Liu Kiu Islands will be studied. It resembles very much *E. yaeyamensis* Masamune. The zigzag and winged stems and branchlets are common to both. The leaves in *E. zigzag* are oblong to oblong-lanceolate and the size 8×2.25 cm. These are considerably smaller than the leaves of *E. yaeyamensis*. *Eurya zigzag* has 10 stamens which are 3 mm. long, with anthers twice the length of the filaments. *Eurya yaeyamensis* has 20 stamens which are 6 mm. long, with the filaments twice as long as the anthers.

29. ***Eurya glaberrima*** Hayata, Icon. Pl. Formos. 8: 8, f. 6(1919).—Yamamoto in Sylvia, 5: 39, f. 26(1934).—Suzuki in Ann. Rept. Taihoku Bot. Gard. 1: 158(1931).

DISTRIBUTION: Formosa.

FORMOSA: *S. Suzuki* 2558; *J. L. Gressitt* 416; *E. H. Wilson* 9717, 10914; *R. Kanehira* 2911; *R. Kanehira & S. Sasaki* 32, 21713; *H. H. Bartlett* 6343; *U. Faurie* 287, 290.

This species is characterized by probably one of the shortest styles in *Eurya*. Hayata describes the style as being 0.25 mm. long. The calyx, style and stigma (fide Hayata) are purple in the pistillate flower. The leaves are coriaceous, linear-lanceolate, 6–8 cm. long, 1–2 cm. wide, slightly emarginate, finely but sharply serrate. As the name signifies the whole plant is “very” glabrous.

30. ***Eurya Hayatai*** Yamamoto in Jour. Soc. Trop. Agric. 5: 348(1933); in Sylvia, 5: 40, f. 28(1934).

DISTRIBUTION: Formosa.

FORMOSA: *E. H. Wilson* 9809, 10882.

The veining on the leaves, except for the midrib, is obscure. This smooth, seemingly unveined leaf surface is one of the outstanding features of the species. Also on the revolute or near-revolute margins, the serration is so finely crenate that the appearance of entirety is given in most cases. The whole plant, even to the terminal bud, is glabrous.

31. **Eurya japonica** Thunberg, Nov. Gen. Pl. 68(1783); Fl. Jap. 191, pl. 25(1784).—Lamarck, Encycl. Méth. Bot. 2: 440(1788); Tabl. Encycl. Méth. 2: 521, pl. 401(1793).—DeCandolle, Prodr. 1: 525(1824).—Hooker & Arnott, Bot. Beech. Voy. 260(1836-40).—Siebold & Zuccarini in Abh. Akad. Münch. 4²: 163 (Fl. Jap. Fam. Nat. 1: 55)(1845).—Blume, Mus. Bot. Lugd.-Bat. 2: 105(1856).—Miquel in Ann. Mus. Bot. Lugd.-Bat. 3: 14(1866); Prol. Fl. Jap. 202(1867).—Franchet & Savatier, Enum. Pl. Jap. 1: 57(1875).—Ito & Kaku, Fig. & Descript. Pl. Koishikawa Bot. Gard. Tokyo, 2: pl. 19(1883).—Y. Tanaka, Useful Pl. Jap. 164, pl. 663(1895).—Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893).—Ito & Matsumura in Jour. Coll. Sci. Tokyo, 12: 326(1900).—Matsumura & Hayata in Jour. Coll. Sci. Tokyo, 22: 46(1906).—Hayata in Jour. Coll. Sci. Tokyo, 25: Art. 19, 60(1908).—Shirasawa, Ic. Ess. For. Jap. 2: pl. 53(1908).—Schneider, Ill. Handb. Laubholzk. 2: 329, f. 611 (f-k²)(1912).—Rehder & Wilson in Sargent, Pl. Wilson. 2: 398(1915).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).—Makino & Nemoto, Fl. Japan, ed. 2, 742(1931).—Yamamoto in Sylvia, 5: 40, f. 29(1934).

Eurya uniflora Siebold ex Siebold & Zuccarini in Abh. Akad. Münch. 4²: 163 (Fl. Jap. Fam. Nat. 1: 55)(1845), *nomen nudum*.

Eurya hortensis Siebold, l.c. (1845), *nomen nudum*.

Eurya montana Siebold, l.c. (1845), *nomen nudum*.—Mueller in Walpers, Ann. Bot. Syst. 4: 342(1857).

Eurya japonica Thunberg var. *uniflora* Blume, Mus. Bot. Lugd.-Bat. 2: 106 (1856).

Eurya japonica Thunberg var. *montana* Blume, l.c. (1856).

Eurya japonica Thunberg var. *hortensis* Blume, l.c. (1856).

Eurya crispa Siebold ex Blume, l.c. (1856), pro synonym. *E. japonica* var. *hortensis* forma *b*.

Eurya japonica Thunberg var. *pusilla* Blume, l.c. 107(1856).

Eurya pusilla Siebold ex Blume, l.c. (1856), pro synonym. *E. japonica* var. *pusilla*.

Eurya japonica Thunberg var. *multiflora* Miquel in Ann. Mus. Bot. Lugd.-Bat. **3**: 14(1866); Prol. Fl. Jap. 202(1867).

Eurya latifolia Hort. ex C. Koch, Dendrol. **1**: 490(1869).

? *Eurya Jacquemartii* Carrière in Rev. Hort. (1869) 369, f. 79.—Quihou in Bull. Soc. Accl. Paris, sér. 2, **6**: 472, f. 3(1869).

Eurya japonica α *Thunbergii* (non Thwaites) Ito & Matsumura in Jour. Coll. Sci. Tokyo, **12**: 326(1900).—fide Nakai.

DISTRIBUTION: Japan, Korea, Formosa.

JAPAN: *E. H. Wilson* 6166, 6130, 6212, 6250, 6302, 7810; *C. S. Sargent* s.n.; *R. Oldham* 92, 139; *Z. Tashiro* s.n.; *C. L. Blume* s.n.; *K. Sakurai* s.n.; *C. J. Maximowicz* s.n.; *T. Tanaka* s.n.; *S. Arimoto* s.n.; *G. Masamune* s.n.

LIU KIU ISLANDS: *E. H. Wilson* 8136; *R. Kanehira* 3364; *H. Mayr* s.n.; *C. Wright* 29.

FORMOSA: *R. Kanehira* 3137; *U. Faurie* 492, 494, 1645; *E. Taquet* 2687, 2688, 2689; *C. Wilford* s.n.; *E. H. Wilson* 9366, 9442.

There has been considerable confusion over the identity of this species. From the material at hand, the range of distribution is rather confined, having been collected only in Japan, the adjacent northern Liu-Kiu Islands, Korea and Quelpaert Island. Early in its history the geographical range (due to a confusion of species) was extended erroneously to include nearly all states of China, India, Malaysia and even the Oceanic Islands. This erroneously determined material belonged mostly to *E. nitida* and since this latter material was more plentiful, nearly all subsequent determinations of *E. nitida* made by comparison were incorrectly called *E. japonica*. The real basis of relationship between these species is the extreme glabrous condition throughout the plant, even to the leaf-buds. The outstanding distinguishing character of *E. japonica* other than its glabrosity is its smooth leaf serrations along with its emarginate apex.

Undoubtedly there are various garden forms of this species. The only variety treated in this paper is *E. japonica* var. *microphylla*. Of the others no material is available for study, and mention of these variations in literature is seldom made. Of *E. Jacquemartii* no material has been seen. However, the fact that its origin is listed as Japan and also since the inadequate description does state that the serration is undulate, a detail brought out in the rough illustration, I feel quite certain that

it is straight *E. japonica* or one of the forms of this diversified species. It is listed in this paper as a synonym rather than as a dubious species.

Ito & Kaku, in 'Fig. and Descript. Pl. Koishikawa Bot. Gard. Tokyo 2: t. 19(1883),' say that in the mountains where this species is abundant, the odor is so strong (disagreeable) at the time of flowering as to make one feel quite uncomfortable. E. H. Wilson also spoke of this strong, unpleasant odor. Ito remarks that the fruit is usually black, sometimes white, however—and a solution made from the ash of the tree is used as a mordant in dyeing.

31a. ***Eurya japonica* Thunberg var. *microphylla* (Siebold) Blume, Mus. Bot. Lugd.-Bat. 2: 107(1856).—Makino & Tanaka, Man. Fl. Nippon, 357(1927).**

Eurya microphylla Siebold ex Siebold & Zuccarini in Abh. Akad. Münch. 4²: 163 (Fl. Jap. Fam. Nat. 1: 55)(1845), *nomen nudum*.

Eurya japonica Thunberg f. *θ. pumila* Miquel in Ann. Mus. Bot. Lugd.-Bat. 3: 14(1886); Prol. Fl. Jap. 202(1867).

Eurya pumila Siebold ex Miquel in Ann. Mus. Bot. Lugd.-Bat. 3: 14(1866); Prol. Fl. Jap. 202(1867), pro. synonym. *E. japonica* var. *pumila*.

DISTRIBUTION: Japan (cultivated).

JAPAN: cultivated in garden, Nagasaki, C. J. Maximowicz s.n.

This variety, like the species, is strictly glabrous even to the terminal bud. The leaves are oblong-obovate, 1.0–2.0 cm. long, ca. 0.5 cm. wide. The apex is blunt and rounded. The serrated margin is similar to that of the species but in the variety, because of the minute size of the leaves, the serrations (6–12 for whole leaf) appear more sharp. This variety can easily be separated from *E. emarginata* var. *microphylla* whose leaves are suborbicular, deeply emarginate, less than 1 cm. long, and whose branchlets are puberulent.

32. ***Eurya rengechiensis* Yamamoto in Jour. Soc. Trop. Agric. 5: 55(1933); in Sylvia, 5: 41, f. 32(1934).**

DISTRIBUTION: Formosa.

FORMOSA: Rengechi, Prov. Taichu, Y. Yamamoto & K. Mori s.n. (type; fragment, AA), Nov. 2–3, 1932.

This is probably the most robust species found in Formosa. The leaves are oblanceolate, 7–8 cm. long, 2.5–3.5 cm. wide; the

widest leaf of the genus in Formosa. The revolute margin is minutely serrulate giving an entire appearance. There are 12–15 pairs of veins which are attached to the midrib at an angle of 60 degrees. These veins are deeply impressed on the upper surface and raised on the lower surface.

A fragment of the type was graciously given the author by Dr. Yamamoto during his recent visit to the Arboretum.

33. **Eurya amplexicaulis** S. Moore in Jour. Bot. 37: 168 (1899).—Merrill, Enum. Philipp. Fl. Pl. 3: 74(1923).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148 (1925).

Eurya auriculata Elmer, Leaflet. Philipp. Bot. 2: 501(1908).

DISTRIBUTION: Philippine Islands (Mindoro, Negros).

PHILIPPINE ISLANDS. MINDORO: Mt. Dulangau, *J. Whitehead* s.n. (holotype; photo. AA); Mt. Halcon, *E. D. Merrill* 545, Nov. 1906.—NEGROS: Dumaguete (Cuernos Mts.), *A. D. E. Elmer* 9544 (isotype of *E. auriculata*, AA, NY), March 1908.

This species stands out from all other species in the Philippines because of its sessile, clasping, auriculate leaves. The only other species similar to it in the whole genus is *E. amplexifolia* Dunn which is found in Kwangtung.

34. **Eurya buxifolia** Merrill in Philipp. Jour. Sci. Bot. 5: 362(1910); Enum. Philipp. Fl. Pl. 3: 74(1923).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

DISTRIBUTION: Philippine Islands (Luzon).

PHILIPPINE ISLANDS. LUZON: *M. S. Clemens* 17199; *M. Ramos* (Bur. Sci. no.) 5834; *A. D. E. Elmer* 8802; *J. K. Santos* (Bur. Sci. no.) 31719; *E. Quisumbing* & *M. Sulit* (Bur. Sci. no.) 82343; *M. Ramos* & *G. Edano* (Bur. Sci. no.) 37675; *W. Klemme* (For. Bur. no.) 5674.

This species is confined to the island of Luzon and is characterized by terete branches, pubescent terminal buds, small coriaceous leaves up to 2.5 cm. long, nearly sessile (petiole up to 1 mm.) and styles very short, free to the base. Its nearest relative is *E. flava*.

35. **Eurya flava** Merrill ex Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

Frutex (probabiliter) vel arbor parva, ramis ramulisque

alatis, gemmis ultimis pubescentibus; foliis oblongo-ellipticis ad oblongo-ovatis apice acuminatis basin cuneatis 2.5–5.0 cm. longis et 1.2–2.3 cm. latis subtus fere flavo-viridibus, costis juvenilibus pubescentibus, marginibus serrulatis, petiolis 2–3 mm. longis; floribus ♀ axillaribus solitariis vel binis, pedicellis brevibus pubescentibus, calycibus pubescentibus; fructibus immaturis globosis 2 mm. latis, stylis 3 ad basin liberis persistentibus brevissimis 1 mm. longis.

DISTRIBUTION: Philippine Islands (Luzon, Sorsogon, Mindanao, Palawan, Leyte, Batan).

PHILIPPINE ISLANDS. LUZON: Benguet Subprov., *E. D. Merrill* 1737 (type, NY, G), May 1914; *E. D. Merrill* 4648; *A. D. E. Elmer* 5910, 6813, 8361, 8767, 22292; *R. S. Williams* 731, 1212; *T. E. Borden* 270; *H. N. Whitford* 1192; *A. Loher* 86; *H. M. Curran & M. L. Merritt* (For. Bur. no.) 7848; *M. Dirige* (Bur. Agr. no.) 18633; *R. Meyer* (For. Bur. no.) 2641; *M. Vanoverbergh* 324; *R. M. Holman* 23; *M. Ramos & G. Edano* (Bur. Sci. nos.) 37788, 37968, 45015.—SORSOGON: *A. D. E. Elmer* 16748; *M. Ramos* (Bur. Sci. no.) 77118.—MINDANAO: *A. D. E. Elmer* 11442; *E. D. Merrill* 6188.—PALAWAN: *A. D. E. Elmer* 13199.—LEYTE: *M. Ramos* (Bur. Sci. no.) 41553; *C. A. Wenzel* 895.—BATAN: *M. Ramos* (Bur. Sci. nos.) 80023, 80289, 80695.

This species was first recognized by Merrill and given the herbarium name *Eurya flava*. However, no description of the species was ever published by Merrill. Melchior, in working up the Theaceae for Engler & Prantl, 'Nat. Pflanzenfam.' (see above), mentions the species as though it were valid in a key to the Philippine euryas. The description in the present treatment is drawn from the actual specimens which were to have been used by Merrill for the types. This is done to avoid any further confusion. The flowers in the type specimens are too small for use in a detailed description, hence the following descriptions of the flowers are drawn from specimens other than the types. For the male flowers, *M. Ramos*, no. 80289 is used: flowers axillary, single or in pairs, subtended by 2 small obtuse bracts, pedicel up to 3 mm. long, pubescent; calyx with 5 imbricated sepals, coriaceous-membranaceous at margin, 3.5 mm. long, 2 mm. wide; corolla of 5 obovate petals, rounded at apex, 4.5–5.0 mm. long, 3 mm. wide; stamens ca. 20, anthers 1 mm. long, filaments twice the anther length. For the female flowers, *Ramos & Edano* no. 37788 is used: flowers axillary, single or in pairs, subtended by linear bracts 0.5 mm. long, pedicel pubes-

cent, up to 1.5 mm. long; calyx of 5 imbricated sepals, coriaceous, membranaceous at margin, 1.5 mm. long; corolla consisting of 5 petals, obtuse, rounded at apex, 2.0–2.5 mm. long, 1.5 mm. wide; ovary globose, glabrous, 1.2 mm. across, style trifid, 0.25 mm. long, free to the base.

36. **Eurya coriacea** Merrill in Philipp. Jour. Sci. Bot. 5: 361 (1910); Enum. Philipp. Fl. Pl. 3: 74(1923).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

Eurya pachyphylla Merrill in Philipp. Jour. Sci. Bot. 13: 309(1918); Enum. Philipp. Fl. Pl. 3: 74(1923).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).—Syn. nov.

Eurya pachyrachis Merrill in Philipp. Jour. Sci. Bot. 13: 310(1918); Enum. Philipp. Fl. Pl. 3: 74(1923).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).—Syn. nov.

DISTRIBUTION: Philippine Islands (Luzon).

PHILIPPINE ISLANDS. LUZON: M. Ramos & G. Edano (*Bur. Sci. nos.*) 26525 (isotype of *E. pachyphylla*, NY, AA), 26579 (isotype of *E. pachyrachis*, AA), 28473, 33310, 38092, 40456, 45693; M. Ramos (*Bur. Sci. nos.*) 5598, 23565; G. Edano (*Bur. Sci. no.*) 75951; A. D. E. Elmer 8642; H. M. Curran, M. L. Merritt & T. C. Zschokke (*For. Bur. no.*) 18052.

This species, confined to the island of Luzon, is characterized by terete stems, glabrous throughout, glabrous terminal buds, very short styles free to the base, and coriaceous or subcoriaceous leaves. *Eurya pachyrachis* was based primarily on a peculiar formation of the pedicel bases of the flowers, evidently persistent from season to season and was interpreted as a racemose inflorescence. This condition is found in other species of *Eurya* and often on an occasional specimen. In other respects it is a true *E. coriacea*. *Eurya pachyphylla* was originally separated from *E. coriacea* by its shorter petioles and glabrous sepals. Occasionally some of the sepals of *E. coriacea* are ciliate. However, this does not hold true for all specimens in the species.

37. **Eurya Pickeringii** A. Gray, Bot. U. S. Expl. Exped. 1838–1842, 1: 211(1854).—Mueller in Walpers, Ann. Bot. Syst. 4: 348(1857).

DISTRIBUTION: Samoa.

SAMOA: on mountains, Tuituila, alt. 600 m., U. S. South Pacific Expl. Exped. 1838–1842 s.n. (type, G); Asama, back of Sologa, Savaii, F. Vaupel 372, Aug. 18, 1905.

This species, along with *E. Richii* and *E. vitiensis*, is poorly represented in western herbaria. Even though possessing the types, the specimens are so poor that it is difficult to recognize relationships. A. Gray uses this species and the following species as a basis for his subgenus *Euryodes* based on the pentandrous staminate flowers. This character is hardly sufficient for sectional delimitation since one finds all numbers of stamens varying from 5 to 10 to 15 etc. One would find it necessary to make a subgenus for each stamen group to correspond with Gray's 5-stamened section, and this would not be feasible.

38. ***Eurya Richii*** A. Gray, Bot. U. S. Explor. Exped. 1838–1842, 1: 212(1854).—Mueller in Walpers, Ann. Bot. Syst. 4: 348(1857).

Eurya sanguinea Vesque in Bull. Soc. Bot. France, 42: 159(1895).

DISTRIBUTION: Samoa.

SAMOA: Upolu, *C. Pickering* s.n. (type G; isotype NY); *S. J. Whitmee* s.n.; *Betche* s.n. (type of *E. sanguinea*; photo. and fragment, AA).

Like *E. Pickeringii*, this species is characterized by pentandrous staminate flowers. The main character of separation from *E. Pickeringii*, which is found on the same island, is its pubescence.

A photograph of the type specimen of *E. sanguinea* was examined. This examination coupled with a study of the description, showed *E. sanguinea* to be the pistillate counterpart of *E. Richii*.

39. ***Eurya vitiensis*** A. Gray, Bot. U. S. Explor. Exped. 1838–1842, 1: 210(1854).—Seemann, Fl. Vitiensis, 14(1865).—Anon. in Gartenfl. 36: 130(1887).

DISTRIBUTION: Fiji Islands.

FIJI ISLANDS: on the summit of a mountain of Ovolau, alt. 600 m., *U. S. South Pacific Expl. Exped. 1838–1842* s.n. (type, G, NY); *B. Seemann* s.n.; *W. H. Harvey* s.n.; *J. Horne* s.n.

A. Gray in his original description writes of this species as being "very glabrous even to the ultimate branches." This is hardly correct. Even on the type specimen (determination in A. Gray's handwriting) pubescence is found on the terminal

buds, young stems and petioles. The species is further characterized by an ovoid, pointed ovary. Gray remarks that the anthers are cuspidate-pointed. This is often characteristic of species in the genus. No suitable flowers could be had for dissection.

40. **Eurya glabra** (Blume) Korthals in Temminck, Verh. Nat. Gesch. Bot. 3: 114(1840).—Blume, Mus. Bot. Lugd.-Bat. 2: 109(1856).—De Vries, Pl. Ind. Bat. Orient. Reinw. 28(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 343(1857).—Miquel, Fl. Nederl. Ind. 1²: 472(1859); in Ann. Mus. Bot. Lugd.-Bat. 4: 104(1868-69).—Vesque in Bull. Soc. Bot. France, 42: 153(1895).—Koorders & Valeton, Bijdr. Boomsoorten Java, 3: 240(1896).—Baker f. in Jour. Bot. 62: suppl. 8(1924).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 147(1925).

Geeria glabra Blume, Bijdr. Fl. Nederl. Ind. 3: 125(1825).

Eurya tristyla Wight & Arnott, Prodr. 86(1834).—Walpers, Repert. Bot. Syst. 1: 369(1842).

DISTRIBUTION: Java.

JAVA: exact locality and collector uncertain (isotype G, NY; photo. and fragment, AA); *O. Warburg* 3365; *O. Kuntze* 5746; *H. S. Yates* 2675.

In 1825 Blume described this species as *Geeria glabra*. In the same publication *Geeria obovata* was also described by him. Later in 1842, Korthals transferred both species to *Eurya*. Strangely enough, although Korthals is credited with the binomial *Eurya obovata*, authors have ignored the other binomial, *Eurya glabra*, made at the same time by Korthals and have credited the changed name to Blume in his publication twelve years later, 1856. Even "Index Kewensis" has credited one combination to Blume and the other to Korthals.

41. **Eurya coneocarpa** Korthals in Temminck, Verh. Nat. Gesch. Bot. 3: 117(1840).—Walpers, Repert. Bot. Syst. 1: 369(1842).—Blume, Mus. Bot. Lugd.-Bat. 2: 108(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 343(1857).—Miquel, Fl. Nederl. Ind. 1²: 471(1859).—Vesque in Bull. Soc. Bot. France, 42: 155(1895).

Eurya japonica Thunberg var. *Thunbergii* Koorders & Valetton, Bijdr. Booms-
oorten Java, 3: 234(1896).—Non Thwaites, Enum. Pl. Zeylan. 41(1864).

Eurya japonica Thunberg var. *coneocarpa* Hochreutiner in Candollea, 2: 434
(1925).

DISTRIBUTION: Java.

JAVA: locality lacking, *P. W. Korthals s.n.* (isotype, NY, G; photo. and frag-
ment, AA); *O. Warburg 3364*; *H. S. Yates 2760*; *E. Meyer s.n.*

Eurya coneocarpa is characterized by unequal and alternate bracts, turbinate or top-shaped fruit (globose-ovoid) and flower buds quite conic in shape because of the abruptly acuminate calyx lobes.

Koorders & Valetton, in referring *E. coneocarpa* to *E. japonica* var. *Thunbergii*, definitely had true *E. coneocarpa* in mind. They refer to the young branchlets as "ramulis ultimis angulatis glabris," which is a true character. On the other hand, Thwaites describes the branches "ramulis teretibus glabris," which does not apply to this species.

42. ***Eurya obovata*** (Blume) Korthals in Temminck, Verh. Nat. Gesch. Bot. 3: 118(1840).—Walpers, Repert. Bot. Syst. 1: 369(1842).—Blume, Mus. Bot. Lugd.-Bat. 2: 107(1856).—De Vries, Pl. Ind. Bat. Orient. Reinw. 27(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 342(1857).—Miquel, Fl. Nederl. Ind. 1²: 470(1859).—Vesque in Bull. Soc. Bot. France, 42: 154(1895).—Koorders & Valetton, Bijdr. Boomsoorten Java, 3: 242(1896).

Geeria obovata Blume, Bijdr. Fl. Nederl. Ind. 3: 125(1825).

Eurya reticulata Korthals in Temminck, Verh. Nat. Gesch. Bot. 3: 118(1840).—Walpers, Repert. Bot. Syst. 1: 369(1842).—Blume, Mus. Bot. Lugd.-Bat. 2: 107(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 342(1857).—Miquel, Fl. Nederl. Ind. 1²: 471(1859).—Baker f. in Jour. Bot. 62: suppl. 9(1924).—Merrill in Contrib. Arnold Arb. 8: 107(1934).

Eurya obovata var. *elliptica* Blume, Mus. Bot. Lugd.-Bat. 2: 107(1856).—Mueller in Walpers, Ann. Bot. Syst. 4: 342(1857).

DISTRIBUTION: Celebes, Java (fide Korthals), Sumatra, Borneo.

CELEBES: in monte Klabat, collector lacking (type; photo. and fragment, AA); on top of Lomphobatang, Gowa, alt. 2700–2850 m., *Neth. Ind. For. Service s.n.*, Sept. 9, 1935.

SUMATRA: locality and collector lacking (isotype of *E. obovata* var. *elliptica*, G); locality and collector lacking (isotype of *E. reticulata*; photo. and fragment, AA); *H. O. Forbes 2393*.

BORNEO. MT. KINABALU: *J. & M. S. Clemens 27883, 28990, 29881, 30347, 33108, 33789, 50813, 50879, 50986*; *M. S. Clemens 10634, 10666*.

Most of the recent workers have used the name *E. reticulata* rather than *E. obovata* when designating this species. These two names appeared under the genus *Eurya* simultaneously (1840) and on the same page. However, *E. obovata* (Bl.) Korthals is merely a transfer from the genus *Geeria* to *Eurya* and as such has precedence over the name *E. reticulata* which was appearing for the first time.

42a. ***Eurya obovata* Korthals var. *sinaboengensis*, var. nov.**
A specie typica differt foliis oblongo-ellipticis.

DISTRIBUTION: Sumatra.

SUMATRA: wooded belt (light jungle) slightly below center of volcano Sinaboeng, alt. at peak 2550 m., *W. N. & C. M. Bangham 1180* (type, AA), Feb. 23, 1932 (shrub 3 m.; fruit green) (AA, NY); Deleng Si Naboen (ascent from Kampong Goeroe Kinajan), Karoland, *H. H. Bartlett 8650*, June 25–26, 1927.

This variety found on the slopes of the volcano Sinaboeng (Si Naboen) resembles *E. obovata* in all respects except leaf shape. Instead of being obovate, rounded-obtuse, the leaves of the variety are oblong-elliptic, tapering at both ends.

43. ***Eurya Roemerii* C. Lauterbach in Nova Guinea, 8⁴: 842 (1912).**—Melchior in Engler & Prantl, *Nat. Pflanzenfam.* ed. 2, 21: 148(1925).

DISTRIBUTION: New Guinea.

NEW GUINEA: lowlands of the Hellwig Mts., Dutch New Guinea, 750 m., *L. von Roemer 848* (type; photo. and fragment, AA), Nov. 1909.

Lauterbach described this species quite completely and stated that the female flower possessed 3 styles and 3 stigmas. In general appearance, *E. Roemerii* resembles more closely the haplostemonous group of New Guinea rather than the many-stamened group of the rest of the genus. One wonders how much material the author possessed in drawing up his description because the photograph of the type is a woefully poor specimen. Even so, from this fragmentary material it stands by itself as a species.

44. ***Eurya Greenmaniana*, spec. nov.**

Arbor parva, ramulis teretibus dense pilis fulvis adpressis vestitis; foliis coriaceis distichis ovatis 2.0–3.0 cm. longis et 0.7–1.0 cm. latis acuminatis basi rotundatis ad truncatis gla-

bris subtus sericeo-pilosis acute serratis, breviter petiolatis; floribus ♀ axillaribus 1–3, sepalis 5 inaequalibus 1.0–1.5 mm. longis, petalis albidis inaequalibus 3 mm. longis 2 mm. latis, ovario globoso glabro, stylis 3 brevibus ad basin liberis, stigmatibus truncatis; fructu ignoto.

DISTRIBUTION: New Guinea.

NEW GUINEA. BRITISH NEW GUINEA: common at fringes and interior of forests, Murray Pass, Wharton Range, Central Distr., alt. 2840 m., *L. J. Brass* 4744 (type, AA), June–Sept. 1933.

Small tree of open-branching habit, branchlets terete, stiff, same diameter throughout, not tapering as is usually the case. The young branchlets and leaves are clothed with a dense fulvous somewhat appressed pilose pubescence. The older leaves are quite glabrous except on the midrib, coriaceous, distichous, ovate, rounded or truncate at the base, acute at the apex, sharply serrate, very short-petiolate or subsessile. The female flowers are found singly or in clusters of two or three in the axils of the leaves. These are bi-bracteolate. The ovary is quite globose, glabrous, topped by a short trifid style, free to the base.

This interesting species is quite distinct from most Papuan species. It resembles more the distichous species of China, especially *E. disticha* from which it differs in having the style and stigma 5-parted instead of 3-parted and its leaves with rotund base, acuminate apex and sharp serration.

It is a pleasure to name this species in honor of Dr. Jesse More Greenman, long a loyal friend and advisor.

Subgenus PENTEURYA

Eurya subgenus **Penteurya**, subgen. nov.

45. **Eurya Hellwigii** Lauterbach in Nova Guinea, 8⁴: 841 (1912).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148 (1925).

DISTRIBUTION: New Guinea.

NEW GUINEA: summit of the Hellwig Mts., Southwest New Guinea, alt. 2500 m., *L. von Roemer* 1249 (type; photo. in AA), Nov. 1909; common on forest fringes, Mt. Albert Edward, Central Division, British New Guinea, alt. 3680 m., *L. J. Brass* 4264, May–July, 1933 (tree, 3–5 m., with stiff spreading branches; branchlets reddish; leaves yellowish beneath; flowers white).

Lauterbach in his original description says that the styles in this species are trifid. In dissections on the flowers of *Brass* 4264 there are five distinct stigmas and the styles are 5-fid. This may intimate that the Brass specimen is perhaps a new species. However, in all other respects it agrees with this species. I feel that had Lauterbach possessed better material he would have discovered, perhaps, the parts of the female flower in fives rather than threes, since this is the condition found in most of the New Guinea species.

46. ***Eurya albiflora*** White in Proc. Roy. Soc. Queensland, 39: 66, pl. 4, fig. 2(1928).

Eurya oreogena Diels in Bot. Jahrb. 62: 483(1929).—Syn. nov.

DISTRIBUTION: New Guinea.

NO SPECIMENS EXAMINED.

Even though no specimens of this species and *E. oreogena* were examined, the descriptions given by the two individual authors, White and Diels, were so well drawn up that it is quite evident that the species is quite distinct and also that both authors had the same species in mind. White described *E. albiflora* one year previous to Diels' *E. oreogena*. Accompanying White's description is an excellent plate. The only discrepancy in the descriptions is found in the number of stamens. White describes *E. albiflora* as having 5 stamens while Diels says that *E. oreogena* has 8–9. Probably there may be a variation in stamen number in the species.

I am of the opinion that the types of both species were collected at the same locality. *Eurya oreogena* was collected at Saruwaged-Gebirge in Northwest New Guinea at 12000 ft., while *E. albiflora* was collected at Sarawaket at 10000 ft.

There is a great resemblance between this species and *Eurya Hellwigii*. However, *E. albiflora* is much more densely pubescent, in fact tomentose, than *E. Hellwigii*. Also the leaf-base in *E. albiflora* is cordate (fide author), while that of *E. Hellwigii* is cuneate or subrotund. The leaves in this species, according to White, are 1.0–1.7 cm. long, decidedly smaller than *E. Hellwigii*. It is assumed that the style of *E. albiflora* is five-fid because of the number of stamens and its relation to other New

Guinea species. This assumption may prove erroneous when female flowers are found and examined.

47. **Eurya Merrilliana**, spec. nov.

Arbor vel frutex 3–5 m. altus, ramis initio pilosis demum glabratis; foliis ovatis 4–6 cm. longis et 2–3 cm. latis coriaceis abrupte acuminatis, acumine emarginato, basi cuneatis supra glabris subtus pilosis serratis venis elevatis perpendicularibus 10–12 paribus, breviter petiolatis, petiolis 2–3 mm. longis; floribus ♂ axillaribus solitariis raro geminatis, pedicellis 3–4 mm. longis; sepalis 5, petalis 5 albidis inaequalibus, staminibus 5; floribus ♀ ovario globoso glabro, stylis connatis, stigmatibus 5; fructibus baccatis glabris globosis.

DISTRIBUTION: New Guinea.

NEW GUINEA. BRITISH NEW GUINEA: common in forest fringe growth, Murray Pass, Wharton Range, Central Division, alt. 2840 m., *L. J. Brass* 4660 (type, AA), June–Sept., 1933 (small tree 3–5 m. with smooth shining leaves, white flowers and slightly compressed, purple fruit); same general locality, alt. 2840 m., *L. J. Brass* 4575, June–Sept. 1933 (small tree or large bush, 2–4 m.; flowers white).

Four normal stamens plus one double stamen make a most interesting character in this species. In all flowers examined this same condition existed. In the double stamen the two filaments were connate the entire length topped by two individual anthers. In the female flowers the style is almost nil. Very short, less than 1 mm., it is topped by five stigmas.

The leaves are shining-smooth, heavy-coriaceous, ovate, 4–6 cm. long, 2–3 cm. wide, tapering very abruptly at both ends, emarginate, sparingly pubescent on lower surface, short-petioled. The terminal leaf-buds and midrib are very hirsute, covered with tan pubescence. The stems are gray, pubescent when young and terete.

It is a pleasure to name this distinct and interesting species in honor of Dr. E. D. Merrill, Director of the Arnold Arboretum, ardent worker in the Pacific Islands flora and a scientist whose interest and assistance in the study of this genus have been most helpful.

48. **Eurya tigang** Schumann & Lauterbach, *Fl. Deutsch. Schutzgeb. Südsee*, 447(1901).—Diels in *Bot. Jahrb.* 57: 434

(1922).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925).

DISTRIBUTION: New Guinea.

NEW GUINEA: Sattelberg, Kaiser Wilhelm Land, *Bamler 24* (type; photo. and fragment, AA), Dec. 24, 1898.

When originally described only male plants were available. Later Diels amended the description (1922) by describing the female flowers, showing that this species, like several others of New Guinea, have an increased number of stigma and style parts (5). The stamen number in this species is five.

The leaves are oblong, linear-lanceolate, 4–12 cm. long, 1.5–3.2 cm. wide, very short or obtusely acuminate at the apex and rounded at the base, coriaceous, entire, rust-colored pubescent below, glabrous above, subsessile with hairy petiole 1.0–2.0 mm. long. Usually there is one, rarely two flowers in the axil. Tree ten meters high.

49. ***Eurya meizophylla*** (Diels), comb. nov.

Eurya tigang Schumann & Lauterbach var. *meizophylla* Diels in Bot. Jahrb. 57: 434(1922).

DISTRIBUTION: New Guinea.

NEW GUINEA: wooded mountains, Lordberg, Kaiser Wilhelm Land, alt. 1000 m., *C. Ledermann 9981* (type; photo. and fragment, AA) (slender tree 15–20 meters with brown bark, white flowers and dark green leaves).

The differences between this species and *E. tigang* are enough to warrant specific ranking. *Eurya meizophylla* has larger, oblique leaves, tapering considerably to a very fine apex, distinctly cuneate at the base and according to my specimen glabrous. *Eurya tigang*, on the other hand, has smaller leaves, although acuminate, bluntly so, quite rounded at the base and quite pubescent on the under surface. The veining of the latter is nearly at a right angle to the midrib while that in *E. meizophylla* is more nearly at a forty-five degree angle and is more sweeping.

The leaves are somewhat oblique, membranaceous, 10–13 cm. long, 3.5–4.5 cm. wide, gradually diminishing at the apex, a little hairy at the bud.

50. **Eurya leptantha** Diels in Bot. Jahrb. 57: 433(1922).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148 (1925).

DISTRIBUTION: New Guinea.

NEW GUINEA: mountain forest, Schraderberg, Sepik-Terr., Kaiser Wilhelm Land, alt. 2070 m., *C. Ledermann 12201* (type; photo. and fragment, AA) (tree 8–10 m. with dark brown bark; leaves shiny, dark green, gray-green beneath; flowers white).

This species, studied only from the photograph and fragment of the type, is outstanding among the New Guinea euryas in that its leaves are distinctly membranous. It has five stamens and five styles, the latter joined (fide Diels) to the middle. The branchlets are lax, not firm and the leaves are lanceolate or lance-oblong (4.0–5.5 cm. long, 1.0–1.5 cm. broad), unequal at the base and long-acuminate at the apex.

51. **Eurya Rehderiana**, spec. nov.

Arborescens ramis teretibus glabris; foliis coriaceis glabris obovatis vel ellipticis 9–10 cm. longis et ca. 3 cm. latis subito acuminatis basi cuneatis margine revolutis integris apice acuminato serrato excepto, petiolis crassis 4–5 mm. longis; fructibus baccatis globosis 5–6 mm. longis et 4–5 mm. latis glabris, stylis brevissimis 5-fidis persistentibus, stigmatibus 5.

DISTRIBUTION: New Guinea.

NEW GUINEA. BRITISH NEW GUINEA: common in forests of lower slopes of Mt. Tafa, Central Division, alt. 2400 m., *L. J. Brass 5073* (type, AA), May–September 1933.

Slender tree 10–15 m. high. Branches terete, reddish-brown while young, grayish when older, glabrous. Leaves thick, coriaceous, glabrous even to bud, obovate to elliptic, 9–10 cm. long, approximately 3 cm. wide, abruptly acuminate at apex, emarginate, serrate at the tapering apex, entire otherwise; petiole stout, 3–5 mm. long. Fruit globose, numerous, dark purple, 5–6 mm. long, 4–5 mm. broad, borne singly or in clusters of 2–3 along the stem, pedicels up to 5 mm.

This new species resembles *Eurya phyllopoda* (Diels) in general form. However, it is separated from this New Guinean species by its entirely glabrous condition as contrasted to

the pubescent leaves and leaf-buds of the latter. Also *E. phyllopoda* is finely serrate along the whole leaf; *E. Rehderiana*, on the other hand, is serrate only at the acuminate apex. The apex of *E. phyllopoda* is acuminate and tapers to a very fine point while *E. Rehderiana* tapers less finely and is emarginate.

It is a pleasure to name this species in honor of Prof. Alfred Rehder, Curator of the Herbarium, Arnold Arboretum. Long a recognized authority on the ligneous flora of the Orient, his interest and helpful criticism in this study are gratefully appreciated.

52. ***Eurya oxysepala*** Diels in Bot. Jahrb. 57: 435(1922).—Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148 (1925).

DISTRIBUTION: New Guinea.

NEW GUINEA. KAISER WILHELM LAND: Sepik Terr., Schraderberg, mountain forest, alt. 2070 m., *C. Ledermann 11971* (type; photo. and fragment, AA), June 13, 1913 (tree 15–20 m.; flowers white; leaves shiny dark green with bright red petioles, young leaves yellowish-red; bark gray-brown).

This species in general appearance resembles *E. Rehderiana*. However, it can be easily distinguished by its leaves which are ovate rather than obovate, less coriaceous, not revolute and serrate along the whole margin. Also the pedicels on the fruit are shorter.

The leaves of *E. oxysepala* are 6–13 cm. long and 2–4 cm. wide, shining dark green, yellowish-red when young. The petiole is bright red.

53. ***Eurya phyllopoda*** (Diels), comb. nov.

Eurya tigang K. Schumann & K. Lauterbach var. *phyllopoda* Diels in Bot. Jahrb. 57: 435(1922).

DISTRIBUTION: New Guinea.

NEW GUINEA. KAISER WILHELM LAND: Sepik Terr., rocky-peak, forest, alt. 1400–1500 m., *C. Ledermann 12752* (type; photo. and fragment, AA), Aug. 19, 1913 (tree 10–12 m. with greenish-white flowers and blue-black fruit; leaves bright shining green, almost white [fide collector] underneath).

Diels in describing *E. tigang* var. *phyllopoda* felt it was, perhaps, only a mature form of *Eurya tigang*. The very leathery leaves, along with the elongated petiole and the tapering base of the leaf, are all outstanding characters in this genus and

merit specific distinction. This species is much nearer the newly described *Eurya Rehderiana* found in British New Guinea. *Eurya phyllopoda* has very finely serrate leaves and leaf-buds which are closely strigose-silky, while *E. Rehderiana* is very glabrous even to the leaf-bud and entire except for the acuminate portion at the apex of the leaf.

DOUBTFUL OR LITTLE-KNOWN SPECIES

Eurya boninensis Koidzumi in Bot. Mag. Tokyo, **32**: 253 (1918).

No material has been available for the study of this species. Koidzumi remarks that it is closely allied to *E. chinensis* f. *macrophylla* but can be distinguished easily, since it is entirely glabrous. Floral descriptions are omitted and the style remnant is considered an apiculate portion of the capsule. This species, because of its glabrous condition, its crenate-serrate leaves and its distribution, probably belongs to *E. japonica* or is a close relative.

Eurya castaneifolia Vesque in Bull. Soc. Bot. France, **42**: 158(1895).

This species was described from a very fragmentary specimen collected by Hooker & Thomson in Khasia and deposited in the Paris Museum. Vesque, in his description, says that the plant is entirely glabrous. This is difficult to believe. The photograph of the type which I have examined shows there are no terminal buds. The stem instead of being angled—a character which is usually associated with glabrous terminal buds—is quite terete. I am of the opinion that the terminal buds, were they present, would be pubescent. The only glabrous relative from Khasia would be *E. nitida* Korthals. However, from general observation, the fragment appears more closely related to pubescent *E. acuminata* DC.

Eurya grandis Choisy in Zollinger, Syst. Verz. Ind. Archip. 147(1854).—Mueller in Walpers, Ann. Bot. Syst. **4**: 347(1857).—Miquel, Fl. Nederl. Ind. **1**²: 471(1859).—Koorders & Valeton, Bijdr. Boomsoorten Java, **3**: 246(1896).

Choisy, in his original description, states that *E. grandis* is

glabrous with terete branches and ovate-acuminate leaves. One would naturally place this species from this description under *E. glabra*. At the same time, however, Choisy remarks that the species is very closely related to *E. Blumeana*, *E. euprista* and *E. serrata*, all three synonyms of pubescent *E. acuminata*. Later Koorders & Valetton, although recognizing it as a valid species, mention that the species is pubescent. In this case the species in question might be united with *E. acuminata*.

Eurya muricata Dunn in Jour. Bot. **48**: 324(1910).

Doubt will hang over this species until the type can be located and studied. There is no record of *Dunn 877* (type) at Kew, and it has been suggested that the specimen may be in the herbarium of the Hongkong Botanical Garden. In the herbarium of the New York Botanical Garden is a supposed isotype. However, this specimen does not agree with the description of Dunn at all and one feels that probably there is an error in the label.

Eurya osimensis Masamune in Trans. Nat. Hist. Soc. Formosa, **25**: 249(1935).

The original description of this species is very inadequate. Leaf measurements were omitted and the author evidently had seen no flowers. The fruit was merely described as globose, a character which could apply to nearly all the species of *Eurya*.

Eurya rapensis F. Brown in Bernice P. Bishop Mus. Bull. no. **130**: 182, f. 26(1935).

My attention was drawn to this species very late in this study—too late in fact to obtain material. The author states that the species was collected on the island Rapa (southern Polynesia) and is closely “allied to *E. vitiensis* A. Gray from Fiji, from which it differs in the larger leaves [4–7 × 1–3 cm.], solitary flowers, 4–5-parted style, the presence of rudimentary stamens in the carpellate flowers and the larger fruits. Native name is *pooto* in Rapa.”

Knowing how variable are the characters mentioned by Brown as limiting the species I am loath to accept or disregard the species until material can be had for study.

Eurya ryukyuensis Masamune in Trans. Nat. Hist. Soc. Formosa, **25**: 249(1935).

As in the case of *E. osimensis*, Masamune fails to give any outstanding characters in his description to separate the species from any number of other species of *Eurya*. He evidently lacked both staminate and pistillate flowers. The fruit, he describes, as axillary, very much like *E. japonica*. In fact, the whole description might well apply to *E. japonica*.

Eurya ternatana Miquel in Ann. Mus. Bot. Lugd.-Bat. **4**: 105 (1868-69).

Only a photograph of the type was available for study of the species. To draw any conclusions concerning this species was quite impossible, hence it must be placed here pending further study.

Eurya timorensis Zippel ex Spanoghe in Linnaea, **15**: 177 (1841), *nomen nudum*.

To my knowledge, the only citation of this species is the original. Spanoghe merely listed it and intimated that he had no knowledge of it.

Eurya yakushimensis (Makino) Makino in Bot. Mag. Tokyo, **27**: 72(1913).

Eurya japonica Thunberg var. *yakushimensis* Makino in Bot. Mag. Tokyo, **24**: 20(1910).

From the description, this species, first described by Makino as a variety and later raised to specific rank, seems nothing more than a narrow-leaved form of *E. japonica*. However, no authentic material has been available, hence the species must be placed here pending further study.

EXCLUDED SPECIES

Eurya albo-punctata (Grisebach) Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, **21**: 147(1925). = *Ternstroemia albo-punctata* Grisebach.

Eurya angulosa (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. **6**: 190(1893). = *Freziera angulosa* Tulasne.

Eurya arbutifolia (Triana & Planchon) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. **6**: 190(1893). = *Freziera arbutifolia* Triana & Planchon.

Eurya Benthiana (Bentham) Bullock in Kew Bull. Misc. Inform. **1936**: 391 (1936). = *Freziera integrifolia* Bentham, non *E. integrifolia* Blume.

Eurya boliviensis (Wawra) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera boliviensis** Wawra.

Eurya Bolleana O. C. Schmidt in Fedde, Rep. Spec. Nov. 33: 177(1933). = **Freziera Bolleana** (O. C. Schmidt), comb. nov.

Eurya calophylla (Triana & Planchon) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera calophylla** Triana & Planchon.

Eurya candicans (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera candicans** Tulasne.

Eurya Cavaleriei Lévillé in Fedde, Rep. Spec. Nov. 9: 450(1911). = **Symplocos laurina** (Retzius) Wallich.

Eurya cernua (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera cernua** Tulasne.

Eurya conocarpa O. C. Schmidt in Fedde, Rep. Spec. Nov. 22: 98(1925). = **Freziera conocarpa** (O. C. Schmidt), comb. nov.

Eurya cordata (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera cordata** Tulasne.

Eurya Dombeyana (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera Dombeyana** Tulasne.

Eurya Ekmani O. C. Schmidt in Fedde, Rep. Spec. Nov. 22: 97(1925). = **Freziera Ekmani** (O. C. Schmidt), comb. nov.

Eurya Esquirolii Lévillé, Fl. Kouy-Tchéou, 415(1915) *nomen nudum*. = **Litsea Kobuskiana** Allen.

Eurya ferruginea (Wawra) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera ferruginea** Wawra.

Eurya Friedrichsthaliana Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera Friedrichsthaliana** (Szyszyłowicz), comb. nov.

Eurya Grisebachii (Krug & Urban) Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 148(1925). = **Freziera Grisebachii** Krug & Urban.

Eurya guatemalensis Donnell-Smith in Bot. Gaz. 46: 109(1908). = **Freziera guatemalensis** (Donnell-Smith), comb. nov.

Eurya guianensis (Wawra) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera guianensis** Wawra.

Eurya Hintoni Bullock in Kew Bull. Misc. Inform. 1936: 391(1936). = **Symplocarpon Hintoni** (Bullock) Airy-Shaw in Hooker's Icon. Pl. 4: t. 3342(1937).

Eurya inaequalifolia Lingelsheim in Fedde, Rep. Spec. Nov. 7: 111(1909). = **Freziera inaequalifolia** (Lingelsheim), comb. nov.

Eurya inaequilatera (Britton) Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 149(1925). = **Freziera inaequilatera** Britton.

Eurya Karsteniana Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera Karsteniana** (Szyszyłowicz), comb. nov.

Eurya lanata (Tulasne) Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 149(1925). = **Freziera lanata** Tulasne.

Eurya lancifolia Standley in Field Mus. Publ. Bot. 8: 317(1931). = **Freziera lancifolia** (Standley), comb. nov.

Eurya lasiopetala (Wight) Gardner in Calcutta Jour. Nat. Hist. 7: 446(1847) = **Adinandra lasiopetala** (Wight) Choisy.

Eurya Lehmannii Hieronymus in Bot. Jahrb. 20, Beibl. 49: 49(1895). = **Freziera Lehmannii** (Hieronymus), comb. nov.

Eurya longipes (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera longipes** Tulasne.

Eurya macrophylla (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera macrophylla** Tulasne.

Eurya mexicana (Turezaniow) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 189(1893). = **Freziera mexicana** (Turezaniow), comb. nov.

Eurya monsonensis Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 149(1925). = **Freziera monsonensis** (Melchior), comb. nov.

Eurya myrtilloides Elmer, Leaf. Philipp. Bot. 1: 323(1908). = **Ilex crenata** Thunberg var. **luzonica** (Rolfe) Loesener.

Eurya Nimanimae (Tulasne) Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 147(1925). = **Freziera Nimanimae** Tulasne.

Eurya nitida Hieronymus in Bot. Jahrb. 20, Beibl. 49: 50(1895), non Korthals. = **Freziera Hieronyma**, nom. nov.

Eurya reticulata (Humboldt & Bonpland) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera reticulata** Humboldt & Bonpland.

Eurya reticulata (Humboldt & Bonpland) Szyszyłowicz var. *subintegrifolia* Hieronymus in Bot. Jahrb. 20, Beibl. 49: 51(1895). = **Freziera reticulata** Humboldt & Bonpland var. **subintegrifolia** (Hieronymus), comb. nov.

Eurya roraimensis (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera roraimensis** Tulasne.

Eurya Seemanniana Pittier in Contrib. U. S. Nat. Herb. 20: 480(1922). = **Freziera Seemanniana** (Pittier), comb. nov.

Eurya sericea (Humboldt & Bonpland) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera sericea** Humboldt & Bonpland.

Eurya sericea (Humboldt & Bonpland) Szyszyłowicz var. *chrysophylla* (Humboldt & Bonpland) Hieronymus in Bot. Jahrb. 20, Beibl. 49: 49(1895). = **Freziera sericea** Humboldt & Bonpland var. **chrysophylla** (Humboldt & Bonpland), comb. nov.

Eurya spathulifolia Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 149(1925). = **Freziera spathulifolia** (Melchior), comb. nov.

Eurya suberosa (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera suberosa** Tulasne.

Eurya subintegrifolia (Rusby) Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 149(1925). = **Freziera subintegrifolia** (Rusby), comb. nov.

Eurya syphilitica (Choisy) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 189(1893). = **Ternstroemia** ? sp.

Eurya ternstroemioides O. C. Schmidt in Fedde, Rep. Spec. Nov. 24: 79(1927). = **Freziera ternstroemioides** (O. C. Schmidt), comb. nov.

Eurya vaccinioides O. C. Schmidt in Fedde, Rep. Spec. Nov. 22: 98(1925). = **Freziera vaccinioides** (O. C. Schmidt), comb. nov.

Eurya verrucosa Hieronymus in Bot. Jahrb. 20, Beibl. 49: 51(1895). = **Freziera verrucosa** (Hieronymus), comb. nov.

Eurya Wawrai (Urban) Melchior in Engler & Prantl, Nat. Pflanzenfam. ed. 2, 21: 149(1925). = **Freziera Wawrai** Urban.

Eurya Yungasiae (Tulasne) Szyszyłowicz in Engler & Prantl, Nat. Pflanzenfam. III. 6: 190(1893). = **Freziera Yungasiae** Tulasne.

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